

Program Integration and Control Contract

International Space Station Program

NNJ09GA18B

**National Aeronautics and Space Administration
International Space Station Program
Johnson Space Center
Houston, Texas**



SOLICITATION, OFFER AND AWARD

THIS CONTRACT IS A RATED
ORDER UNDER DPAS (15 CFR 350)

PAGE

1 of See sect 11 below

2. CONTRACT NO. NNJ09ZBG001R Final RFP	3. SOLICITATION NO. NNJ09ZBG001R	4. TYPE OF SOLICITATION <input type="checkbox"/> SEALED BID (IFB) <input checked="" type="checkbox"/> NEGOTIATED (RFP)	5. DATE ISSUED 12/02/08	6. REQUISITION/PURCHASE NO.
ISSUED BY NASA Lyndon B. Johnson Space Center Space Station Procurement Office 2101 NASA Parkway Mail Code: BG Houston, TX 77058		CODE BG	8. ADDRESS OFFER TO (If other than item 7) NASA Lyndon B. Johnson Space Center 2101 NASA Parkway Attn: Andrea R. Falls, Building 35C Houston, TX 77058	

NOTE: In sealed bid solicitations "offer" and "offeror" mean "bid" and "bidder"

SOLICITATION

9. Sealed offers in original and copies for furnishing the supplies or services in the Schedule will be received at the place specified in item 8, at the Lyndon B. Johnson Space Center, until **1:30PM**, local time, on **February 13, 2009**. NOTE: Volume III, Past Performance, and Section K, Representations and Certifications are due at the place specified in item 8, at the Lyndon B. Johnson Space Center, until **1:30PM** local time, on **January 29, 2009**. All offers are subject to all terms and conditions contained in this solicitation. CAUTION - LATE Submissions, Modifications, and Withdrawals: See Section L, Provision No. 52.214-7 or 52.215-1. All offers are subject to all terms and conditions contained in this solicitation.

10. FOR INFORMATION CALL:	A. NAME Andrea R. Falls	B. TELEPHONE NO. (NO COLLECT CALLS) AREA CODE (281) NUMBER 483-1862 EXT.	C. EMAIL ADDRESS andrea.r.falls@nasa.gov
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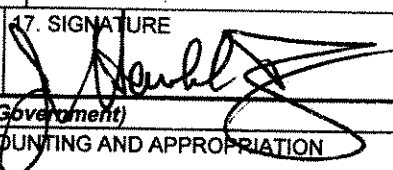
OFFER (Must be fully completed by offeror)

NOTE: Item 12 does not apply if the solicitation includes the provisions at 52.214-16, Minimum Bid Acceptance Period.

12. In compliance with the above, the undersigned agrees, if this offer is accepted within calendar days (60 calendar days unless a different period is inserted by the offeror) from the date for receipt of offers specified above, to furnish any or all items upon which prices are offered at the price set opposite each item, delivered at the designated point(s), within the time specified in the schedule.

13. DISCOUNT FOR PROMPT PAYMENT (See Section I, clause No. 52-232-8)	10 CALENDAR DAYS %	20 CALENDAR DAYS %	30 CALENDAR DAYS %	CALENDAR DAYS %
14. ACKNOWLEDGMENT OF AMENDMENTS (The offeror acknowledges receipt of amendments to the SOLICITATION). For offerors and related documents numbered and dated:	AMENDMENT NO 01 02	DATE 01/16/09 01/23/09	AMENDMENT NO	DATE

15. NAME AND ADDRESS OF OFFEROR ARES Corporation 1440 Chapin Avenue, Suite 390 Burlingame, CA 94010	CODE 1BYL8	FACILITY 5316	16. NAME AND TITLE OF PERSON AUTHORIZED TO SIGN OFFER (Type or print) J. Harold Taylor, Vice-President
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15B. TELEPHONE NO. (Include area code) 281-461-9797	15C. CHECK IF REMITTANCE ADDRESS IS DIFFERENT FROM ABOVE - ENTER <input type="checkbox"/> SUCH ADDRESS IN SCHEDULE	17. SIGNATURE 	18. OFFER DATE 2/13/09
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AWARD (To be completed by Government)

19. ACCEPTED AS TO ITEMS NUMBERED	20. AMOUNT	21. ACCOUNTING AND APPROPRIATION
22. AUTHORITY FOR USING OTHER THAN FULL AND OPEN COMPETITION <input type="checkbox"/> 10 U.S.C. 2304(c) () <input type="checkbox"/> 41 U.S.C. 253(c) ()	23. SUBMIT INVOICES TO ADDRESS SHOWN IN: (4 copies unless otherwise specified) <input checked="" type="checkbox"/> ITEM See Block 7	
24. ADMINISTERED BY (If other than item 7) CODE	25. PAYMENT WILL BE MADE BY CODE	

NAME OF CONTRACTING OFFICER (Type or print) Andrea R. Falls	27. UNITED STATES OF AMERICA  (Signature of Contracting Officer)	28. AWARD DATE 4/28/09
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IMPORTANT - Award will be made on this Form, or on Standard Form 26, or by other authorized official written notice.

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PART I - THE SCHEDULE

SECTION B - SUPPLIES OR SERVICES AND PRICE/COSTS

B.1 LISTING OF CLAUSES INCORPORATED BY REFERENCE

NOTICE: The following contract clauses pertinent to this section are hereby incorporated by reference:

I. FEDERAL ACQUISITION REGULATION (48 CFR CHAPTER 1)

CLAUSE NUMBER	DATE	TITLE
None included by reference		

II. NASA FAR SUPPLEMENT (48 CFR CHAPTER 18) PROVISIONS

CLAUSE NUMBER	DATE	TITLE
None included by reference		

B.2 CONTRACT VALUE

B.2 Total Contract Value	Maximum Contract Value
	Base Period
Phase-In (FFP)	\$154,881
IDIQ (NTE)	\$137,611,918
IDIQ Travel & Materials (NTE)	\$6,000,000
Conference Facility Lease & Materials (NTE)	\$510,000
TOTAL	\$144,276,800

Maximum value of supplies and services ordered under this contract shall not exceed \$180,000,000, including F.4 Option 1 and Option 2. Maximum not-to-exceed (NTE) value does not reflect an obligation of the Government. The Government's obligation hereunder shall be based on that specified in the task/delivery orders issued during the period of the contract.

Minimum value of IDIQ supplies and services ordered in total and paid for under this contract shall be \$2,000,000.

Maximum NTE for Travel and Materials is the maximum authorized value for the total contract period of performance. Individual Task Orders will have separate authorized NTE for Travel & Materials. The contractor will be authorized for travel and material pursuant to the Travel and Task Ordering Procedures. The Government will not pay any travel or material costs under this contract except as properly authorized by task orders.

(End of clause)

B.3 NFS 1852.216-78 FIRM FIXED PRICE (CONTRACT PHASE-IN) (DEC 1988)

The total firm fixed price of the phase-in of this contract is \$154,881. The contract phase-in period is from August 3, 2009 through September 30, 2009.

(End of clause)

B.4 INDEFINITE DELIVERY/INDEFINITE QUANTITY (IDIQ) ORDERS

"The Government may order IDIQ services at any time after contract start, in accordance with the procedures set forth in this contract. The contractor shall utilize the rates shown in the following table for the pricing of IDIQ task orders

On-Site (JSC & Armand Plaza) Labor Rates		Base Period			Option 1	Option 2
Standard Labor Category	Unit	Contract Year 1 Rate	Contract Year 2 Rate	Contract Year 3 Rate	Contract Year 4 Rate	Contract Year 5 Rate
		10/01/2009 - 9/30/2010	10/01/2010 - 9/30/2011	10/01/2011 - 9/30/2012	10/01/2012 - 9/30/2013	10/01/2013 - 9/30/2014
Program Manager	Hour					
Program Manager I	Hour					
Manager	Hour					
Supervisor	Hour					
Technical Professional I	Hour					
Technical Professional II	Hour					
Technical Professional III	Hour					
Technical Professional IV	Hour					
IT Professional I	Hour					
IT Professional II	Hour					
IT Professional III	Hour					
Analyst I	Hour					
Analyst II	Hour					
Analyst III	Hour					
Secretary	Hour					
Clerk	Hour					
Business Specialist	Hour					
Business Specialist I	Hour					
Business Specialist II	Hour					
Data/Documents Management Specialist	Hour					
Facility Coordinator	Hour					
Indirect rates applied to Non-Labor Resources:	%					
BASE: G&A applied to full cost of materials and/or travel.						

Off-Site Labor Rates*		Base Period			Option 1	Option 2
Standard Labor Category	Unit	Contract Year 1	Contract Year 2	Contract Year 3	Contract Year 4	Contract Year 5
		10/01/2009- 9/30/2010	10/01/2010- 9/30/2011	10/01/2011- 9/30/2012	10/01/2012- 9/30/2013	10/01/2013- 9/30/2014
Manager (Off-Site)	Hour					
Technical Professional I (Off-Site)	Hour					
Technical Professional II (Off-Site)	Hour					
Technical Professional III (Off-Site)	Hour					
Technical Professional IV (Off-Site)	Hour					
IT Professional I (Off-Site)	Hour					
IT Professional II (Off-Site)	Hour					
IT Professional III (Off-Site)	Hour					
Functional Expert Consultant I (Off-Site)	Hour					
Functional Expert Consultant II (Off-Site)	Hour					
Functional Expert Consultant III (Off-Site)	Hour					
Business Management Specialist (Off-Site)	Hour					
Indirect rates applied to Non-Labor Resources:	%					

BASE: G&A applied to full cost of materials						
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**Off-Site standard lab or category rates apply only to individuals that are not assigned, on a full-time basis, to this contract and are not located at either JSC or the Armand Plaza facility.*

On-Site (JSC & Armand Plaza) Overtime rates		Base Period			Option 1	Option 2
Standard Labor Category	Unit	Contract Year 1	Contract Year 2	Contract Year 3	Contract Year 4	Contract Year 5
		9/30/2010	9/30/2011	9/30/2012	9/30/2013	9/30/2014
Non-Exempt Employee Overtime Rate*						
Analyst I	Hour					
Analyst II	Hour					
Secretary	Hour					
Clerk	Hour					

**Overtime on an exception basis only with prior CO approval.*

The Government will not be obligated to pay the contractor any amount in excess of the of the not-to-exceed values identified in each IDIQ task order, and the contractor shall not be obligated to continue performance if, to do so, would exceed the not-to-exceed values set forth in the IDIQ task order(s), unless and until the Contracting Officer notifies the contractor in writing that the not-to-exceed values have been increased and specifies in the notice a revised- not-to-exceed values that shall constitute the not-to-exceed value for performance."

(End of clause)

B.5 RESERVED

B.6 CONTRACT TYPE

This is an Indefinite Delivery/Indefinite Quantity (IDIQ) Fixed Rate contract.

(End of clause)

"B.7 Prime Burden Rate

The rates identified in Section B.4 Indefinite-Delivery-Indefinite-Quantity contain a prime burden component which covers the following Houston-based functions:

1. [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
2. [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

Prime Burden functions identified above shall not be charged as direct labor on IDIQ task orders.

Houston-based resource management functions and contractual financial management performed in direct support of DRD development and delivery will be direct charged in accordance with SOW Section 1.2.3 Resource Management and are not included in the prime burden rate component.

(End of clause)”

PROGRAM INTEGRATION AND CONTROL

SECTION C

STATEMENT OF WORK

PROGRAM INTEGRATION AND CONTROL

PREFACE

The Contractor shall provide Program Integration and Control (PI&C) products and services in support of the continued development and operation of the International Space Station (ISS) whose purpose is to conduct physical, engineering, and life sciences research for the benefit of life on Earth and to advance exploration of our solar system and enable commerce in Space. Thorough knowledge and expertise of the ISS will be necessary to perform this contract. The Contractor is to provide products and services in support of the following functional areas:

- Program Management;
- Business Management;
- Configuration Management (CM)/ Data Management and Integration (DMI);
- Program Information Technology;
- International Integration;
- Human Spaceflight Collaboration;
- Systems Analysis and Integration;
- Engineering and Technical Services;
- Visiting Vehicle Integration and
- Safety and Mission Assurance

The Performance Standards include: the requirements as described in the Statement of Work, Task Orders, metrics described in DRD PIC-PM-02, and will be statused monthly as part of the Program Management Review(s).

The objective of this contract is to assist the National Aeronautics and Space Administration (NASA) in the management of the ISS Program by utilizing effective performance approaches and adequate resources to accomplish PI&C requirements in the most cost-efficient manner.

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1.0 MANAGEMENT INTEGRATION AND CONTROL

The Program Integration and Control (PI&C) Contractor shall provide all necessary program, business management, engineering, technical, administrative skills to accomplish the objectives and outcomes described within this contract. The Contractor shall perform the services and deliver the products described in this Statement of Work (SOW), contract terms and conditions, applicable documents, Data Requirements Descriptions (DRDs), and other plans and sections contained within this contract. These products and services will be in direct support of the International Space Station (ISS) Program to manage and integrate the implementing organizations (National Aeronautics and Space Administration [NASA] Center institutions, other Contractors, and International Partners/Participants [IP/Ps]) and ISS Program customers. This includes the continued development, maintenance, and implementation of top-level Research and Development (R&D) requirements, which flow to the implementing organizations to enable the continued operation and utilization of the ISS R&D facility.

1.1 PROGRAM MANAGEMENT

1.1.1 Program Management and Administration

- (a) The Contractor shall perform Program management and administration, including risk management, in order to develop and deliver the required ISS Program products and services as defined for this contract.
- (b) The Contractor shall develop and maintain Program management systems, as outlined below, for the planning, organization, control, and reporting of all activities required by this contract.
- (c) The Contractor shall develop an Innovations & Efficiencies (I&Es) process to identify, assess, recommend and track I&Es for implementation by the Government. The process shall include provision of comparison data (e.g., cost, technical and schedule) to the Government to allow for an assessment and analysis of each I&E. The assessment of data shall be included in the monthly status report (DRD PIC-PM-02).

These products and services will include the development and operation of systems necessary for providing assessments and analysis for the overall R&D, integration, status (e.g., cost, technical, and schedules for the ISS Program) and for providing inputs to the ISS Program for overall strategic planning, policy and risk management of the ISS Program and its R&D of experiments and projects to facilitate the ISS Program in accomplishing its mission.

These systems will assure accomplishment of all outcomes and deliverable products required by this contract.

1.1.1.1 Planning and Reviews

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The Contractor shall develop, update and implement a PI&C Certification of Flight Readiness (CoFR) Plan per DRD PIC-PM-03 in accordance with SSP 50108, Certification of Flight Readiness Process Document. The Contractor shall develop and implement an auditable approach to verify and ensure that flight preparation responsibilities and requirements are met and all issues dispositioned.

1.1.2 Internal/External Program Review Support

- (a) The Contractor shall develop briefing materials and analyses for ISS Program presentations and meetings with various internal and external review groups. These groups include the Aerospace Safety Advisory Panel (ASAP), Space Station Utilization Advisory Subcommittee (SSUAS), Stafford/Anfimov committee, Inspector General/Government Accountability Office (IG/GAO), Space Flight Advisory Committee (SFAC), ISS Management and Cost Evaluation/NASA Advisory Council (IMCE/NAC), Independent Implementation Review (IIR), and Cost Assessments Teams.
- (b) The Contractor shall prepare and present various topics, such as ISS Program technical, cost, and schedule status, specific safety or risk issues, and responses to external inquiries.

1.2 BUSINESS MANAGEMENT

1.2.1 RESERVED

1.2.2 RESERVED

1.2.3 Resource Management

As part of the Program management for this contract, including risk management, the Contractor shall support the Resource Management Office in Program Planning and Control (PP&C) of budget funding, contract changes tracking and analysis and reserves management. The Contractor shall perform the following tasks:

1.2.3.1 Financial Management

- (a) The Contractor shall develop, implement, maintain, and update a contract financial system which tracks resources by contract Work Breakdown Structure (WBS) including, but not limited to, fully burdened labor and other direct cost, (e.g. materials, travel, and subcontracts).
- (b) The Contractor's financial planning system shall support the Government budget process (e.g. Program Planning Budgeting and Execution [PPBE] budget calls), and support special requests

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for budget impacts. NASA will, in accordance with the budget or special request guidelines and reporting format, specify the format and content of the Contractor's inputs and supporting rationale.

(c) The Contractor shall provide financial reporting in accordance with DRD PIC-PC-01.

1.2.3.2 RESERVED

1.2.3.3 Special Reporting

The Contractor shall develop and provide Workforce Reports in accordance with DRD PIC-PC-03.

1.2.3.4 PI&C Contract Work Breakdown Structure (WBS)

The Contractor shall develop and provide a contract PI&C WBS and Dictionary in accordance with DRD PIC-PC-04. The WBS and Dictionary shall indicate the mapping of the Contractor WBS to the contract SOW WBS and SSP 50659, ISS Program Work Breakdown Structure, at the lowest levels of the ISS Program WBS.

1.2.4 ISS Program Budget Requirements, Assessments and Scheduling

1.2.4.1 Budget Requirements and Assessments

1.2.4.1.1 ISS Program Budget Database Maintenance and Tracking Contract

The Contractor shall utilize the Space Program Integrated Contract Environment (SPICE) and the Integrated Enterprise Management Program (IEMP) databases to accomplish the following:

- (a) The Contractor shall maintain the ISS Program budget database to include tracking of all approved changes.
- (b) The Contractor shall answer queries from Contracting Officer (CO), NASA Program Planning and Control (PP&C) managers and resource analysts and provide various financial and workforce reports.
- (c) The Contractor shall track all approved purchase requests for the ISS Program Office.
- (d) The Contractor shall track funding requirements for the ISS Program Office.
- (e) The Contractor shall track monthly cost actuals for the ISS contracts as needed in the IFM database.
- (f) The Contractor shall provide data analysis, monthly cost status, and presentations.

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1.2.4.1.2 ISS Program Reserves/Changes Management Database

The Contractor shall use the SPICE and the Integrated Risk Management Application (IRMA) databases to accomplish the following:

- (a) The Contractor shall maintain the data in the ISS Program Reserves/Changes Management database to include tracking of all changes.
- (b) The Contractor shall answer queries and provide reports.
- (c) The Contractor shall provide ad-hoc product support to the Resources Management Office.
- (d) The Contractor shall answer queries from NASA PP&C managers and resource analysts and provide reports.

1.2.4.1.3 Assessments

The contract shall support the Assessments, Cost Estimating and Scheduling (ACES) Office in assessing the ISS Program budget, cost, schedule and technical baseline to provide early warning for possible impacts to the ISS Program cost. The Contractor shall identify, evaluate, analyze, track, and report planning and assessment issues, and risks along with providing recommendations to the ISS Program managers. The Contractor shall coordinate content and formats of all assessments and analyses with the ISS Program prior to delivery of all final products.

- (a) The Contractor shall integrate data from the ISS Program cost performance reports, including risks, to assess ISS Program performance. These assessments will be used by the ISS Program ACES Office for the development of overall Program analyses and status.
- (b) The Contractor shall identify, evaluate, and report risk issues in a monthly early warning report to the ISS Program Manager. This report provides detailed status of the ISS Program performance against the ISS Program plan and impact of cost, schedule, and technical variances against the plan; and shall recommend actions to abate potential ISS Program impacts.
- (c) Prior to the ISS Program Quarterly Review, the Contractor shall identify, evaluate, and report a preview assessment of the ISS Program status and technical health to the ACES office based on the assessment of the most current technical, cost, and schedule reports.
- (d) Upon completion of the Quarterly Review, the Contractor shall provide an updated evaluation of the ISS Program status and technical health, based on the results of the data provided and presented as part of the quarterly Program Management Review.

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- (e) The Contractor shall perform ad-hoc analyses and assessments including, but not limited to, parametric cost estimates, schedule, cost, requirements, and workforce correlations and analyses, life cycle cost (LCC) estimates, and trade studies.
- (f) The Contractor shall perform and integrate ad hoc parametric cost estimates, including but not limited to the preparation and documentation of individual cost estimates, the reconciliation of cost estimates with technical evaluation of Contractor proposals, and the integration of component estimates to produce consolidated estimates and associated reports.
- (g) The Contractor shall maintain analytic models associated with the development of parametric cost estimates and related assessments.
- (h) The Contractor shall track and identify ISS Program threats for the ACES Office in support of the Program Risk Advisory Board and the monthly Early Warning Reports. The Contractor shall support the ACES office in the generation and development of reports from IRMA which shall provide a probabilistic estimate of the budget threats and a summary of the budget cost impact in current and out years. A Quantitative Risk Assessment tool shall be used to generate the estimate.

1.2.4.2 Program Scheduling

The Contractor shall provide overall ISS Program schedule management and analysis/assessment to support the continued development and operation of the ISS. The Contractor shall perform schedule analyses/assessment and report findings of those assessments at various levels of the ISS Program. Operation of a scheduling system that supports overall ISS Program objectives and requirements is also within the scope of the Contractor.

1.2.4.2.1 Schedule Management

- (a) The Contractor shall develop and provide PI&C schedules and schedule analysis/assessments for the ISS Program (DRD PIC-PC-06).
- (b) The Contractor shall prepare and report program schedule metrics.
- (c) The Contractor shall provide reporting and schedule analysis. (DRD PIC-PC-06)

1.2.4.2.1.1 Program Schedule Management

The Contractor shall integrate schedule information from ISS, IP, ISS Program Contractors and ISS Cost Accounting Manager (CAM) performing organizations into ISS Program Integrated Program Flight Schedules and schedule products.

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- (a) The Contractor shall provide schedule development and analysis/assessments for all flights and Program level activities.
- (b) The Contractor shall provide schedule updates and status reports to ISS Program management.
- (c) The Contractor shall maintain and update schedules and Program management information on the ISS Program Web site for the Integrated Program Flight Schedule, ISS Program and schedules for the ONE NASA Management Information System (MIS) (DRD PIC-PC-06).

1.2.4.2.1.2 Integrated Program Schedules Panel (IPSP) Support

- (a) The Contractor shall support, organize and conduct the weekly NASA led IPSP meeting.
- (b) The Contractor shall support the IPSP by providing deliverables that provide for issue identification, schedule status and assessments and special agenda topics. The Contractor shall provide these deliverables to the IPSP in support of the ISS Program as determined by customer.

1.2.4.2.1.3 Program Level Schedule Data Management

The Contractor shall lead the ISS Program schedule data acquisition effort from all ISS Program participants in order to acquire the data necessary to support the continued development, evolution, and monthly maintenance of Integrated Program Flight Schedule and lower level CAM Project schedules. The Contractor shall attend various ISS Program meetings to obtain information that support the effort described in schedule management.

1.2.4.2.2 Scheduling Systems Support

- (a) The Contractor shall operate a scheduling system identified in Addendum 4, Table 1, in support of the ISS Program.
- (b) The Contractor shall, with NASA guidance, review or audit other ISS Program Contractors' schedules to ensure compliance with current general Project Management conventions and requirements (e.g. Project Management Institute guidelines) and for indications of positive performance compared to plans. The Contractor shall work through the IPSP to resolve schedule or process issues identified.

1.2.4.2.3 Schedule Assessments

The Contractor shall perform top level and lower level schedule analyses and assessments for ISS Program organizations, projects, IP Elements, Visiting Vehicles.

- (a) The Contractor shall provide a schedule assessment for each United States On-Orbit Segment (USOS) flight planned to the ISS. These assessments shall include an independent assessment

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of the overall flight readiness such as payloads, orbital replacement units (ORU), flight support equipment, and carriers.

- (b) The Contractor shall perform risk based schedule assessments for Change Requests, development projects, critical items schedules, and special projects in support of the ISS Program Manager utilizing current Project Management tools and simulation techniques. Management reports shall be developed to support ISS Program decision making.
- (c) The Contractor shall monitor and report status of development projects, critical items' schedules, and special projects in support of the ISS Program Manager utilizing current Project Management tools and simulation techniques.

1.2.4.2.4 CAM Schedule Support

- (a) The Contractor shall gather schedule updates and provide status reports to ISS Project Engineers/Managers.
- (b) The Contractor shall create hardware delivery matrices, delivery schedules and trend charts, as required to show indication of project performance.

1.2.4.2.5 ISS Program Planning Calendar / Certification of Flight Readiness (CoFR) Review Meeting Matrix

The Contractor shall maintain the ISS Program Planning Calendar and CoFR Meeting Matrix.

- (a) The Contractor shall participate in meetings to coordinate Program Calendar updates. The Contractor shall maintain the ISS Program Planning Calendar on the ISS Program Web site and provide updates twice weekly. The Contractor shall also produce copies and deliver them to the customer in support of Program office organizational staff meetings and the Integrated Program Schedule Panel (DRD PIC-PC-06).
- (b) The Contractor shall provide maintenance of the CoFR Meeting Matrix by participating in meetings and providing updates and electronic status to Program participants of the CoFR matrix for baselines and working versions (DRD PIC-PC-06).

1.2.4.2.6 Special Schedule Trade Studies

At the written direction of NASA, the Contractor shall perform Special Schedule Trade Studies or create ad hoc schedules in support of the ISS Program.

1.2.4.2.7 Propose Alternate Report Formats

The Contractor shall develop and propose alternate report formats, if necessary, for NASA review and concurrence.

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1.3 CONFIGURATION MANAGEMENT (CM) / DATA MANAGEMENT AND INTEGRATION (DMI)

1.3.1 Configuration Management

The Contractor shall develop, implement, and administer configuration management operations across the ISS Program as specified in this contract and in accordance with SSP 41170, Configuration Management (CM) Requirements; SSP 50010, Standards for ISS Program Documentation; SSP 50172, Data Management Handbook; and SSP 50123, Configuration Management Handbook. Additionally, the Contractor shall be responsible for contract specific CM functions as described in each of the functional CM areas described below.

1.3.1.1 Management and Administration

The Contractor shall provide for continued establishment and maintenance of the ISS Program CM policies, procedures and requirements, including maintaining an infrastructure for the continued development and baselining of hardware and software. The Contractor shall provide book coordination functions for documents listed in Addendum 6, which contain the ISS Program CM/Data Management and Integration (DMI) requirements, policies, standards, and procedures. The Contractor shall maintain SSP 50706, Change Engineer Handbook; SSP 50744, Data Impoundment Processing Procedures; SSP 50421, Program Planning and Control Office CoFR Implementation Plan; SSP 50764, Modification Kit Process; and other ISS Program Configuration Management/Data Management documents.

1.3.1.1.1 The Contractor shall develop and implement a CM Plan in accordance with DRD PIC-CM-01.

1.3.1.1.2 The Contractor shall support Technical Interchange Meetings (TIMs) and ISS Program Milestone Reviews by providing inputs regarding CM.

1.3.1.1.2.1 The Contractor shall participate in the International Configuration Management Telecons (ICMTs) and:

- (a) Schedule conference rooms;
- (b) Notify attendees;
- (c) Request interpretation/translation services;
- (d) Schedule and set-up equipment;
- (e) Prepare agendas;
- (f) Prepare meeting material;
- (g) Prepare minutes; and

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(h) Track action items.

1.3.1.1.2.2 The contractor shall participate in the annual ICMT Face-to-Face meetings with the IP/Ps providing the same administrative functions described above in paragraph 1.3.1.1.2.1.

1.3.1.1.2.3 The Contractor shall participate in the ISS Program Milestone Reviews and:

- (a) Schedule conference rooms;
- (b) Notify attendees;
- (c) Request interpretation/translation services;
- (d) Schedule and set-up equipment;
- (e) Prepare agendas;
- (f) Prepare meeting material;
- (g) Prepare minutes; and
- (h) Track action items.

1.3.1.1.3 The Contractor shall develop, maintain, and deliver desk instructions including but not limited to the following areas, in accordance with SSP 50123 and SSP 50172:

- Change Processing
- Configuration Status Accounting
- Audit and Verification
- Engineering Release Unit
- CM Receipt Desk
- Meeting Support
- Board Secretariats
- Change Integrators
- Document Quality Assurance
- Directive Desk
- Program Data Integration Team (PDIT) Help Desk
- Other Programs' Change Request (CR) reviews.

1.3.1.2 Configuration Status Accounting and Verification

The Contractor shall maintain Configuration Status Accounting requirements in accordance with SSP 41170 and assure the requirements and processes are implemented across the ISS Program.

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The PI&C Contractor shall perform the following Configuration Status Accounting functions across the ISS Program:

1.3.1.2.1 Participate in ISS hardware and software Functional Configuration Audits (FCA) and Physical Configuration Audits (PCA) by acting as the co-chair of the PCA CM panel as defined in D684-10097-01, Guidelines and Procedures for the conduct of Functional Configuration Audit (FCA) / Physical Configuration Audit (PCA). The Contractor shall:

- (a) Determine the acceptability of the panel review items;
- (b) Support the audit Chairperson(s) in developing recommended solutions to actions/issues;
- (c) Prepare panel summary and minutes, and submit for inclusion in the audit minutes;
- (d) Review draft minutes of the audit and sign applicable certification sheets, as appropriate;
- (e) Ensure all necessary documentation is compiled and presented in an understandable manner to the customer;
- (f) Coordinate panel activities and review/document progress daily;
- (g) Determine if the use of sub-panels is necessary due to size/complexity of the Configuration End Item (CEI)/Configuration Item (CI) and/or Computer Software Configuration Item (CSCI); and
- (h) Ensure audit action item/issue forms are available for auditors to document issues identified during the audit.

1.3.1.2.2 The Contractor shall participate in ISS Program acceptance reviews and readiness reviews to ensure CM issues are addressed and dispositioned. The Contractor shall:

- (a) Identify all open work for the CI and/or CSCI have been closed;
- (b) Verify that no unapproved activity has occurred to change the configuration since the PCA was performed;
- (c) Provide all preplanned, assigned, unplanned or deferred work associated with the item subject to the acceptance review to be presented in summary at the review; and
- (d) Identify any issues or concerns derived from work transfer or deferral and provide to NASA CM.

1.3.1.2.3 On-Orbit Configuration Working Group (OCWG)

The Contractor shall ensure the application of On-Orbit Configuration Status Accounting requirements and systems result in hardware and software product baselines in accordance with SSP 41170.

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The Contractor shall provide support to the OCWG ensuring timely tracking, reporting, analysis, and disposition of on-orbit discrepancies between the as-built and the as-designed hardware configuration.

The Contractor shall provide technical coordination to the OCWG and:

- (a) Attend OCWG as a member and facilitate the OCWG as required;
 - (1) Provide technical assessment of all new, closed and current Configuration Discrepancy Reports (CDRs) according to MGT-OH-018, On-Orbit CDR Resolution Process,
 - (2) Facilitate the meeting if NASA Chair is not available.
- (b) Organize the OCWG Meeting;
 - (1) Support NASA chair to schedule OCWG meetings,
 - (2) Establish agendas and schedule meetings based on CDR activity,
 - (i) Send meeting notice/secure meeting room/set-up conference call-in.
 - (3) Document and track action items;
 - (4) Write and publish minutes for the OCWG,
 - (i) Summarize the essence of discussions surrounding decisions and actions.
- (c) Maintain and track all CDR activity in the OCWG Master CDR List;
- (d) Review Master CDR List weekly;
 - (1) To identify stalled CDRs or possible issues,
 - (2) To ensure that the CM Contractor(s) are providing a current status of on-orbit configuration discrepancies.
- (e) Establish and facilitate bi-weekly (or as required) Contractor pre-coordination reviews to evaluate CDR activity;
- (f) Coordinate OCWG support for CDRs with high risk or safety impact to the ISS Program by establishing a special topic OCWG or adding it to the agenda of the appropriate Program forum (i.e. System Problem Resolution Team [SPRT], Systems Working Group [SWG], Vehicle Control Board [VCB], etc);
- (g) Establish and maintain OCWG website includes current information regarding on-orbit configuration discrepancies;
- (h) Maintain the OCWG charter and the OCWG Work Instruction (MGT-OH-018).

1.3.1.2.4 Audit and validate the data residing in the Program status accounting systems (e.g., Space Station Accounting and Verification [SSAV], Configuration Status Management Operations System [COSMOS] and Electronic Document Management System [EDMS]) to ensure accuracy and completeness.

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1.3.1.2.5 Validate the ISS Program baseline including the review and evaluation of changes to ensure proper baseline maintenance. The Contractor shall verify that the product and product information are properly updated per Program approved changes.

1.3.1.3 Configuration Control

The PI&C Contractor shall perform the following Configuration Control activities across the ISS Program:

1.3.1.3.1 Ensure execution of the change process in accordance with SSP 50123 and individual ISS Program Contractor CM plans. The Contractor shall:

- (a) Ensure changes are thoroughly coordinated prior to submittal;
- (b) Reviewed and evaluated;
- (c) Implemented by an approved ISS Program Change Directive;
- (d) Provide a single focal point for IP/P communication. Contractor shall:
 - (1) Assist in tracking, status and closure of IP/P changes,
 - (2) Assist in managing IP/P actions, telecons, and IP/P CM TIMs;
- (e) Provide a thorough review of all directive packages to ensure quality packages prior to submittal for NASA CM signature per SSP 50123 and OH-WI-017, International Space Station Configuration Management (CM) Directive Work Instruction.

1.3.1.3.2 Maintain all CM blank forms/templates required for change processing and maintain a quality control function to provide uniform change paper across the Program.

1.3.1.3.3 Provide CM Secretariats for all ISS Program Control Boards and Panels. CM Secretariat functions are to be performed in accordance with ISS Program PPD-522, Space Station Control Board/Panel Operations Policy, and SSP 50123. Board/panel participation shall include:

- (a) Participate as a board/panel member;
- (b) Provide CM direction to the board chair;
- (c) Coordinate with the board chair and CM meeting support personnel on all Space Station Change Notices (SSCNs) processed through the board;
- (d) Track and report on all open SSCNs under the board responsibility;
- (e) Ensure that complete directive packages are available at the board for concurrence/approval;
- (f) Provide technical review and concurrence of the board minutes; and
- (g) Notify the Change Integrator in writing of the directive approval status following the board meeting.

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1.3.1.3.4 Provide meeting logistics, administration, agendas, action item management, minutes, and archival of all presentation material and decisional paper for all ISS Program Configuration Control Boards and Panels, Bi-lateral and Tri-lateral Program Boards, Acceptance Reviews, IP Assessment Reviews, and ISS Program reviews. In addition, the Contractor shall provide the following administrative functions:

- (a) Scheduling conference rooms;
- (b) Notifying attendees;
- (c) Requesting interpretation and translation services;
- (d) Requesting local transportation services for Foreign Nationals, when necessary;
- (e) Scheduling and set-up of equipment;
- (f) Preparation of meeting materials;
- (g) Provide Quality Records Management for Flight Certifications per NPR 1441.1;
- (h) Provide Quality Records Management for ISS Boards and panels;
- (i) Provide reports and metrics; and
- (j) Provide administrative functions for decision documents.

1.3.1.3.5 PP&C CoFR Panel Reviews and Stage Operations Readiness Reviews per SSP 50108 and SSP 50421. The Contractor shall:

- (a) Provide charts identifying open work for each flight;
- (b) Provide status at lower boards/panels for each flight;
- (c) Capture and track CoFR actions and CoFR exceptions to closure for each flight;
- (d) Track open paper for each flight; and
- (e) Maintain the PP&C CoFR schedule.

1.3.1.3.6 Conduct a Program Change Screening Board (CSB), as described in SSP 50123, to screen all new change requests. The Contractor shall:

- (a) Review all new/revised Change Requests (CRs) submitted to the ISS Program system;
- (b) Confirm Contractor unit responsible to lead processing of the change;
- (c) Verify that all CR information is complete;
- (d) Ensure that all affected NASA organizations and Contractors are given the opportunity to evaluate;
- (e) Verify evaluation schedules, assessing the urgency of the CR; and
- (f) Verify the appropriate board/panel and the board/panel dates.

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1.3.1.3.7 The PI&C Contractor shall perform the following Configuration Control activities for changes specific to the PI&C contract:

1.3.1.3.7.1 Process changes specific to the PI&C contract in accordance with SSP 50123. Review and evaluate ISS Program changes originating from outside the PI&C contract to determine if those changes have potential impacts to the PI&C contract.

1.3.1.3.7.2 Maintain and process Program Directives (Management Directives, Joint Program Directives, and Partner Program Directives) in accordance with procedures established in SSP 50123. The Contractor shall:

- (a) Prepare redlines to directive,
- (b) Initiate CR and release for evaluation to the ISS Program,
- (c) Incorporate comments,
- (d) Prepare directive for ISS Program signature, and
- (e) Release directives in EDMS.

1.3.1.3.7.3 Coordinate the ISS Program review of the Space Shuttle Program and Constellation Program changes. The Contractor shall prepare a consolidated response for the CRs back to the Space Shuttle Program and Constellation Program in writing.

1.3.1.3.7.4 The Contractor shall participate in special projects requiring lifecycle CM knowledge. Activities will include project planning, documentation changes, expedited CM process development and facilitation of new ISS Program requirements development to support expedited processing and ensure traceability of data is available for certification of flight readiness.

1.3.1.3.8 Input, maintain, and validate the COSMOS database to assign CR numbers, track/status changes, and provide accurate information, reports, and monthly metrics.

1.3.1.3.8.1 Process all ISS Change Directive packages in addition to the PI&C changes processed under 1.3.1.3.7.1. Contractor shall:

- (a) Obtain, track and status directive packages.
- (b) Obtain directive signatures.
- (c) Distribute, track and status directive actions to closure.
- (d) Change Request/Directive data entry.

1.3.2 Program Data Management and Integration

1.3.2.1 The Contractor shall maintain and implement an SAE AS9100, Quality Systems - Aerospace - Model for Quality Assurance in Design, Development, Production, Installation, and Servicing, compliant data management system in accordance with SSP 50010, SSP 50172 and SSP

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41170, and assure the requirements and processes are implemented across the Program. The Contractor shall:

- 1.3.2.1.1 Update and maintain the electronic ISS Program Documentation Tree.
- 1.3.2.1.2 Update and maintain the ISS Program technical documentation baseline in EDMS and COSMOS.
- 1.3.2.1.3 Maintain the ISS Program Master List of work instructions, processes, and procedures in accordance with SAE AS9100. Upload and post ISS Program work instructions to EDMS.

The Contractor shall provide the following administrative functions:

- (a) Assign work instruction numbers;
- (b) Upload work instructions to the authorized Program repository;
- (c) Update the ISS Program Master List; and
- (d) Notify author and Quality Management (OX) of updates/releases.

1.3.2.1.4 Provide Data Requirement (DR) receipt, tracking, monitoring, reporting, validation, evaluation, distribution, status, and storage of ISS Program contracts deliverables and IP/P data deliverables incoming to the ISS Program as identified in the following Bilateral Data Exchange Agreements, Lists and Schedules (BDEALS) and Bilateral Hardware and Software Exchange Agreements, List, and Schedules (BHSEALS) documents: SSP 50124, NASA/CSA BDEALS; SSP 50126, NASA/NASDA BDEALS; SSP 50127, NASA/ESA BDEALS; SSP 50137, NASA/RSA BDEALS; SSP 50407, NASA/ESA BDEALS for Cupola 1; SSP 50611, NASA/ESA BDEALS for ATV; SSP 50614, NASA/NASDA BDEALS for HTV; SSP 50352, NASA/AEB BDEALS.

1.3.2.1.5 The Contractor shall manage and operate the International Partner Library (Integrated Office Management System [IOMS] or equivalent) to track IP/P Program data. The contents of the library shall include, but not limited to the following: translated Russian documents; BDEALS data; NAS15-10110 Contract deliverables; Government Furnished Data (GFD) deliverables; IP/P protocols; IP/P safety data packages; hazard reports; drawings; film; videos; photos; faxes; and letters. The Contractor shall be able to access and provide requested materials/information within two business days.

The Contractor shall perform the following Data Management activities in accordance with SSP 41170, SSP 50010 and SSP 50172 specific to the PI&C contract:

1.3.2.1.6 Provide an Engineering Release Unit (ERU) in accordance with SSP 50123 and SSP 50172 for release of ISS Program baseline documentation.

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1.3.2.1.7 Operate a Configuration Management Receipt Desk (CMRD) in accordance with SSP 50123 and SSP 50172.

1.3.2.1.8 Provide Document Quality Assurance (DQA) in accordance with SSP 50010 and SSP 50172 for all ISS Program controlled documentation identified under this contract and NASA owned documents not specified under other existing ISS Program contracts.

1.3.2.1.9 Maintain and deliver SSP 50177, Government Furnished Data (GFD) Description Document. The Contractor shall notify other existing ISS Program Contractors for delivery of United States (U.S.) and IP/P GFD in accordance with SSP 50177.

1.3.2.2 Program Technical Data Access

The Contractor shall integrate and maintain the Orbital Replacement Unit (ORU) data and Flight support Equipment (FSE) data (provided by ISS Vehicle Office/Logistics and Maintenance and the hardware providers) in the Orbital Replacement Unit Data Directory (ORUDD) or equivalent. The ORUDD provides a user-friendly single access point for retrieving technical data regarding ORUs and FSEs.

1.3.2.2.1 Centralized Program Data Requirements

The Contractor shall respond to requests for resolving data workflow process issues that cross ISS Program contractual interfaces and impacts to work performance. Responding to, and resolving requests for issues with data workflow processes shall include:

- (a) Identification and documentation of the issue or problem;
- (b) Investigation, analysis and documentation of the data workflow processes involved and the associated interfaces;
- (c) Development of a resolution plan and schedule;
- (d) Facilitation of the implementation of the proposed resolution;
- (e) A three-month follow-up to verify resolution is working and provide rework as identified; and
- (f) Provision of closeout documentation addressing sub-paragraphs (a) thru (e).

1.3.2.2.1.1 Certification of Flight Readiness Support

The Contractor shall participate in special projects requiring lifecycle Data Management (DM) knowledge. Activities will include project planning, documentation changes, expedited DM process development and facilitation of new ISS Program requirements development to support expedited processing and ensure traceability of data is available for certification of flight readiness.

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1.3.2.2.2 Data Management Process Improvements

The Contractor shall assess the state of technology and the Program's data requirements, processes and infrastructure, and propose new process improvement concepts for the Government's consideration. In this assessment, the Contractor shall solicit inputs from customers/users. These proposed concepts may be driven by one or more of the following reasons:

- (a) New customer requirements,
- (b) Improving performance, efficiency or effectiveness of ISS Program's data requirements and/or processes,
- (c) New agency or center policies,
- (d) Conforming to current standards and formats,
- (e) Reducing operating costs.

1.3.2.2.3 Book Coordination

The Contractor shall provide book coordination functions for documents listed in Addendum 6, "Documents to be Book Coordinated/Managed", including preparation, distribution and processing Document Change Notices (DCNs), Notice of Document Changes (NDCs) and revisions in accordance with SSP 41170 and SSP 50010 including the following documents:

- (a) BDEALS/BHSEALS:
 - (1) SSP 50124, NASA/CSA Bilateral Data Exchange Agreements, Lists, and Schedules,
 - (2) SSP 50126, NASA/NASDA Bilateral Data Exchange Agreements, Lists, and Schedules,
 - (3) SSP 50127, NASA/ESA Bilateral Data Exchange Agreements, Lists, and Schedules,
 - (4) SSP 50137, NASA/RSA Bilateral Data Exchange Agreements, Lists, and Schedules,
 - (5) SSP 50407, NASA/ESA Bilateral Data Exchange Agreements, Lists, and Schedules for Cupola 1,
 - (6) SSP 50614, NASA/ESA Bilateral Data Exchange Agreements, Lists, and Schedules for ATV,
 - (7) SSP 50352, NASA/AEB Bilateral Data Exchange Agreements, Lists, and Schedules,
- (b) SSP 50622-03, Operations Data Set Blank Book, and
- (c) SSP 50839, ISS Program Operations Description (IPOD).

1.3.2.2.4 Support to ISS Program Data Users

The Contractor shall ensure data which impacts the management and operations of the ISS Program is integrated, valid and accessible to all ISS participants.

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The Contractor shall coordinate with all ISS Program organizations and IP/Ps having ISS Program data to resolve immediate ISS Program problems and work towards the long term goal of integrated, valid, and accessible ISS Program data.

The Contractor shall locate data, identify, and resolve data discrepancies, and document data processes associated with ensuring accessibility to available technical ISS Program data for all Program data users.

1.3.2.2.5 Review of Change Request for Data

The Contractor shall assess and concur on ISS Program CRs that contain requests for data in order to ensure no duplication and that delivery of the data is specified to an authorized Program repository.

1.4 PROGRAM INFORMATION TECHNOLOGY (IT)

The Contractor shall provide the IT infrastructure for use by ISS Program participants to support the mission of the ISS Program. Other Contractors within the ISS Program will provide the IT support necessary to perform the requirements as stated in their respective contracts. The other Contractors may request to utilize the ISS Program IT infrastructure provided by the PI&C contract when common products and services provide for increased supportability, commonality, or efficiencies. The Contractor shall provide the IT infrastructure necessary to meet the requirements, as defined in this contract, in accordance with SSP 50013, ISS Information Systems Plan.

Institutional desktop and workstation support for on-site personnel will be provided by NASA, through an Information Resources Directorate (IRD) or Agency IT services contract, in accordance with NFS 1852.245-77 and Mission Focus Review (MFR) 137. Through an IRD or Agency Contractor, NASA will provide the ISS Program with standard office desktop workstation hardware and a standard software load for the provided hardware. Through an IRD or Agency Contractor, NASA will be responsible for support and asset management of all IRD-provided hardware and software.

The Contractor shall obtain system administrator access as necessary from the IRD Contractor to support ISS Program-specific hardware and software requirements on IRD-provided desktops and workstations. The Contractor shall coordinate any depot maintenance of IRD-provided hardware with the IRD Contractor.

1.4.1 IT Management and Administration

Any of the existing ISS Program IT tools defined in Addendum 2, Table 1 are available as GFD which will be utilized by the Contractor to fulfill contract requirements.

1.4.1.1 The Contractor shall report all IT delivered or direct charged to this contract by developing, maintaining and implementing the ISS Program Information Technology (IT) Capital

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Investment Plan and associated reports in accordance with SSP 50222, ISS Program Capital Investment Process (CIP).

1.4.1.2 The Contractor shall develop, maintain and implement an IT Management Plan in accordance with DRD PIC-IT-01 for reportable IT. The IT Management Plan shall, at a minimum, address the following functions: system management and operations, project management, configuration management, IT security, technology infusion, procurement, work authorization, and metrics.

1.4.1.3 If the Contractor implements a Public Key Infrastructure (PKI) system, the Contractor system shall be interoperable with the NASA PKI system.

1.4.1.4 The Contractor shall develop and implement IT project plans in accordance with DRD PIC-IT-02 for the following activities:

- Implementation of new hardware and software capabilities,
- Conducting studies, market surveys, and system tests, and
- Developing and supporting proposed system hardware relocation plans as required.

1.4.1.5 Any new projects shall be documented in a business case, using the NASA Office of the Chief Information Officer (OCIO) Strategic Investment Business Case (SIBC) format, and submitted to NASA for approval in accordance with DRD PIC-IT-02.

1.4.1.6 The Contractor shall maintain an IT Performance Management and Capacity Plan in support of performance planning, analysis (e.g., log review, trend analysis, and system utilization), and design activities for new or modified systems capabilities; or for providing system and component-level capacity planning and monitoring to ensure adequate capacity and performance margins. The plan shall be prepared on an annual basis and include the following where applicable:

- (a) By system, a summary of systems performance, including charts depicting observations for the current and previous 3 quarters, and a trend line reflecting anticipated performance for the coming 4 quarters. Performance will be quantified in terms of large and small transactions, as well as end-to-end transaction performance as measured from the end-user workstation to the host or data system.
- (b) By system, a summary of resource utilization, including Computer Processing Unit (CPU), Disk, Memory, related Equipment (e.g., backup tape systems, off-line/near-line storage systems, physical storage space), and network bandwidth where applicable, with charts depicting observations for the current and previous 3 quarters and a trend line reflecting anticipated improvements or degradation during the coming 4 quarters.
- (c) A discussion of the analysis and findings for any systems that have experienced significant performance anomalies or an increase or decrease in resource utilization relative to the previous month's baseline.

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- (d) Recommendations for improving any outstanding performance issues or capacity shortfalls.
- (e) Recommendations for systems reconfiguration or consolidation that reduce operating costs or improve resource availability.

1.4.1.7 The Contractor shall develop and implement an IT Technology Infusion Plan to propose new technology and service concepts for the Government's consideration. The plan will give the government the ability to view the Contractor(s) innovative ideas for solving the technical challenges outlined within this SOW and will address proposed skill mix and "resource requirements."

1.4.1.7.1 Concept for IT Technology Infusion Plan

- (a) The Contractor shall assess the state of technology and the Program's requirements, business processes and infrastructure, and propose new technology and service concepts for the Government's consideration. In this assessment the Contractor shall solicit inputs from customers/users. These proposed concepts may be driven by one or more of the following reasons:
 - New customer requirements;
 - Improving performance, efficiency or effectiveness of ISS Program Office business operations and/or business processes;
 - Upgrades to other systems that affect the primary systems functional capabilities, e.g., upgrades to a web browser not compatible with primary systems;
 - New product releases;
 - Complying with safety requirements;
 - New agency or center policies;
 - Conforming to current standards and formats;
 - Reducing operating costs;
 - Limited system enhancements to produce higher quality products;
 - System components become obsolete or non-repairable.
- (b) The Contractor shall obtain approval for proposed concepts and associated estimated costs prior to initiating a full technology infusion effort.
- (c) If the plan is approved by the Government, then an approved IT Project Plan, to be developed in accordance with DRD PIC-IT-02, shall accomplish the implementation.

1.4.1.7.2 Content for IT Technology Infusion Plan

The plans shall address at a minimum and as applicable:

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- List price pages (catalog price),
- Description of proposed technology, including integration test results to date,
- Contractor product identification number,
- Model number,
- GSA and commercial catalog unit number, if available,
- Hardware and Software items to be replaced by the new technology product,
- Changes/impacts to ISS Program customers/users and other ISS Program IT providers, and to NASA and Center(s) IT architectures and standards,
- Changes to Agency or Center specific Strategic Plans,
- Implementation plan and schedule,
- System performance improvements as a benefit to the Government,
- Known and anticipated impact on ISS Program and non-ISS Program Contractors,
- Proposed adjustment to transition charges,
- Impacts on Contractor performance, and
- Estimated return on investment.

1.4.2 IT Systems Management and Operations

The Contractor shall ensure that all Contractor-managed IT systems are performing efficiently within their defined life cycles in accordance with NASA requirements, including Safety, IT Security and schedules, as well as industry best practices and applicable standards.

- (a) The Contractor shall provide the ISS Program customer community with full life cycle system support for ISS Program IT systems, applications (e.g., web, mainframe, workstation, client/server, utility), platform systems, services, equipment, etc., as defined in Addendum 3 and Addendum 4, Table 1, Table 2, and Table 3. The full life cycle includes planning, requirements definition, design, programming, prototyping, testing, documentation, deployment, training, sustaining engineering, and operations.
- (b) The Contractor shall propose a life cycle methodology that encompasses all life cycle phases for IT systems and applications. The proposed methodology shall enable the provisioning of IT systems with the best performance and quality in a cost effective manner.
- (c) The Contractor shall address IT security in each phase of the life cycle.
- (d) The Contractor shall implement IT system performance standards in accordance with the requirements set forth in Addendum 3.

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- (e) The Contractor shall function as the property custodian for the Government property assigned to this contract, identified in Addendum 4, Table 3.

1.4.2.1 IT Life Cycle Management

The Contractor shall manage designated production systems, development and integration systems, ongoing and new projects, and functions and activities required to provide products and services to the ISS Program customer community. The Contractor shall adhere to policies and standards, and support information exchange and decision making forums. In support of this effort, the Contractor shall provide the following activities:

1.4.2.1.1 The Contractor shall review Government-provided policies, architectures, standards, and procedures affecting this contract and recommend appropriate modifications and implementation strategies.

1.4.2.1.2 The Contractor shall provide a representative to attend recurring Government-sponsored meetings, such as the Information Resources Directorate Configuration Board, the Chief Information Officer's Network Access Control Board and the ISS IT Working Group.

1.4.2.1.3 The Contractor shall manage the acquisition of commercial off-the-shelf (COTS) software, hardware, and associated maintenance agreements as approved by the Government. The Contractor shall provide all consumables used in operating the systems associated with this contract.

1.4.2.1.4 The Contractor shall use and manage Government Furnished Equipment (GFE), including software and hardware, in the performance of this contract.

1.4.2.1.5 The Contractor shall develop, implement, and maintain IT Standard Operating Procedures in order to sustain products and services defined in this contract. These procedures shall provide guidance for interfacing with other organizations and specific tasks required in the process of meeting customer requirements, and shall instruct technicians, production personnel, and other users in the proper setup and operations of systems. These procedures are not intended to document the details of how the tasks or interfaces are to be accomplished. These procedures shall:

- (a) Describe each system in terms of the requirements it fulfills, the equipment comprising the system, and any interconnection to other systems;
- (b) Reference system engineering drawing numbers;
- (c) Reference manufacturers' operations manuals;
- (d) Give specific details on setup configurations related to the intended equipment functions;

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- (e) Give step-by-step system check instructions that, when performed, verify the system is functioning as designed;
- (f) Give step-by-step instructions on how to operate the system equipment to achieve every stated purpose of the system, including references to manufacturers' manuals when appropriate;
- (g) List the required customer interfacing tasks;
- (h) List other procedures applicable to performing a specific system operation;
- (i) Cross reference any corresponding Standard Operating Procedures (SOP);
- (j) Reference preventive maintenance procedures; and
- (k) Use the ISS Document Management System to store and configuration manage the SOP documents.

1.4.2.1.6 The Contractor shall develop, implement, and maintain an IT Configuration Management Plan as defined below in order to maintain hardware and software specifications and baseline control of IT systems.

1.4.2.1.6.1 Concept for IT Configuration Management Plan

- (a) The Contractor shall establish, implement, and comply with a stringent process of configuration management for all systems defined under this contract.
- (b) The Contractor shall not change, modify, or relocate Government equipment or systems without prior approval unless otherwise stated in the configuration management plan.
- (c) The Contractor shall provide, revise, and maintain a complete set of engineering and exhibit drawings, hardware and software configurations, and specifications and associated change documentation for all IT systems defined in this contract.
- (d) Where baseline configuration information does not exist, the Contractor shall define the baseline.
- (e) The Contractor shall provide current configuration documentation for all systems under this contract within 6 months after contract phase-in.

1.4.2.1.6.2 Content of IT Configuration Management Plan

The IT Configuration Management Plan shall contain the process to be implemented for control of both engineering (design) configuration, and operational configuration. The IT Configuration Management Plan shall include the following:

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- (a) Define how configuration control will be recorded and documented,
- (b) Identify the specific part of the organization responsible for maintaining the configuration control records,
- (c) Identify the documentation and data systems required to provide configuration control for both hardware and software,
- (d) Identify the specific equipment, systems, and operational interfaces which are subject to configuration control,
- (e) Describe the procedures to be used to coordinate, define, test, monitor, and control all technical and operational interfaces,
- (f) Identify individuals responsible for writing and for approving configuration control procedures, and
- (g) Define how NASA will be involved with final decisions in the change process.

1.4.2.1.7 The Contractor shall develop IT configuration reports that contain information and status on all equipment and software, which are maintained by and/or operated by the Contractor. The information fields required for each category of equipment or software in the system shall include information on the category's description, location, user, manufacturer, external connections to other systems, maintenance support, and other fields normally contained in an IT configuration management system.

1.4.2.1.8 IT Sustaining Engineering and Operation

The Contractor shall provide sustaining engineering, including preventive maintenance, and operations for IT systems. At a minimum, support will include the following activities.

1.4.2.1.8.1 The Contractor shall provide sustaining engineering for multimedia, computer, and network systems defined in Addendum 3 and Addendum 4, Table 1, Table 2, and Table 3. Sustaining engineering for applications shall include developing limited new capabilities, bug fixes, and coordination and testing support in response to new operating system and program product. For hardware systems and stand-alone equipment, sustaining engineering includes preventive and remedial maintenance, ordering of replacement parts, sparing, end-of life (EOL), and system software and firmware updates and patches.

1.4.2.1.8.2 The Contractor shall manage third party maintenance and license agreements.

1.4.2.1.8.3 IT sustaining engineering shall minimize disruption to system availability during normal working hours. The Contractor shall coordinate and schedule changes that require production outages with the customer in advance of the outage. In the event the outage is an

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emergency, the Contractor shall immediately notify, via telephone and e-mail, the ISS Program IT Lead and shall provide continuous status of the progress and expected time of availability.

1.4.2.1.8.4 The Contractor shall establish and conduct a preventive maintenance and operational readiness program as defined below to ensure that all identified systems are functioning within required specifications.

1.4.2.1.8.4.1 Remedial Maintenance

The Contractor shall repair or replace failed equipment and restore it to operating condition. The repair and restoration may involve the temporary replacement of the equipment with a like item to allow continuation of the provided service. When failed equipment cannot be removed, the repairs shall be accomplished in a way that minimizes disruption of other operational activities. When repair of a specific item of equipment is not cost effective (when repair costs exceed one third of replacement costs), with the concurrence of the ISS Program IT Lead, the Contractor shall replace the equipment. For equipment used to meet mission requirements, immediately after being notified that equipment is out of service the Contractor shall initiate repair and notify the ISS Program IT Lead via e-mail.

1.4.2.1.8.4.2 Maintenance Agreements and License Management

The Contractor shall create, maintain, and implement plans and schedules for maintenance agreement and license management. For Government-funded renewals, the Contractor shall inform the ISS Program IT Lead via e-mail a minimum of 90 days prior to expiration of agreements.

1.4.2.1.8.4.3 COTS Upgrades and Maintenance

The Contractor shall ensure defects in COTS products are fixed and version upgrades to COTS software are obtained. The Contractor shall coordinate with the Government and application vendors. The Contractor shall assess and implement each new patch or update to be applied for all supported platforms within 90 days of vendor release of the updates or patches. The Contractor shall request a waiver if they find that a release or patch is incompatible with the current institutional environment, would impact data integrity or system stability, or would otherwise cause undue disruption to the user community. The Contractor shall evaluate and update critical security patches within 24 hours of the patches being released by the vendor.

1.4.2.1.8.5 The Contractor shall operate and provide system administration for all systems identified in Addendum 3. System administration processes and procedures shall adhere to NASA and Johnson Space Center (JSC) policies and procedures. The Contractor shall ensure that system administration support is provided within schedule guidelines. Operation and system administration shall include:

- ID administration and folder setup for access,
- Data transmission among systems,

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- Creation/deletion of network printer queues,
- System backups,
- Virus scans,
- Vulnerability scans,
- Problem identification and resolution, and
- Technology upgrades.

1.4.2.1.8.5.1 The Contractor shall provide Return to Service for IT systems as identified in Addendum 3.

1.4.2.1.8.5.2 The Systems Administration functions (excluding facility, network outages, IT incident investigations, and maintenance service not under control of the Contractor) shall be performed to minimize disruption to system availability, with the exception of scheduled outages.

1.4.2.1.8.5.3 The Contractor's system administrators shall ensure that backup, restore, archival, continuous monitoring, continuity of operations and contingency operations are performed as per the System Security Plan and associated documentation.

1.4.2.2 IT Security Support

1.4.2.2.1 The Contractor shall assume responsibility for maintaining existing IT System Security Plans for on-site ISS IT systems. The Contractor shall advise ISS Program customers and users on IT security policies and implement approved security and networking solutions.

1.4.2.2.2 The Contractor shall monitor production capabilities and respond to requests for IT security support by providing consultation and direct technical assistance to assist customers with the development of requirements for secure firewall and networking solutions.

1.4.2.2.3 Response to IT Security Issues and Incidents

- (a) The Contractor shall report all IT security issues, security incidents, problems and resolutions to the ISS Program Organization Computer Security Official (OCSO) and ISS Program IT Lead. The Contractor shall provide real-time incident status reports as required, beginning within twenty-four (24) hours after a security incident has been discovered. The Contractor shall provide a final status report within twenty-four (24) hours after the conclusion of any incident investigation.
- (b) The Contractor shall process security-related incidents, including identifying network attacks (denial of service, viruses, worms, etc.), identifying and analyzing cases of misuse of IT resources, securing computing resources as required, and providing 24-hour response to computer security incidents and notification of appropriate personnel.

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- (c) The Contractor shall provide analysis of security incidents relating to misuse of IT resources or incorrectly configured systems, securing computing resources as required or working with system owners to properly reconfigure affected systems.

1.4.2.2.4 Certification and Accreditation Packages and Related Documentation

Major re-certifications of IT Systems requiring Certification and Accreditation (C&A) occur every three years, and the Contractor must prepare for and support this activity to ensure successful system re-certification. The next major re-certification for the ISS Production Facility system is anticipated to occur in June 2010.

The Contractor shall update and maintain existing C&A packages in accordance with DRD PIC-IT-03. In addition, the Contractor shall develop, update and maintain C&A packages for any offsite facilities that contain or process NASA data in accordance with DRD PIC-IT-03 Section 8(II).

1.4.2.3 Work Authorization and User Support

1.4.2.3.1 The Contractor shall gather, organize, and disseminate IT information to the customer community in formats appropriate to the information. Subject matter content will vary but will always focus on keeping the ISS Program community informed in a timely and accurate manner, providing them ready knowledge of products and services available, the mechanisms for acquiring those services, and information intended to help the customer. Services also entail reviewing and coordinating responses to e-mail traffic received in centralized electronic mailboxes intended for customer communication. The Contractor shall manage user accounts for access to ISS applications including additions, modifications, expiration, and deletion as defined in SSP 50013.

1.4.2.3.2 User Requirements/Analysis

- (a) The Contractor shall perform data gathering, entry, and analysis of requests to ensure that the customer requirement for products and services is documented and processed.
- (b) As approved by the ISS Program IT Office, the Contractor shall document and coordinate implementation of IT requirements requested by institutional and international IT service providers.
- (c) The Contractor shall serve as the primary point of contact for ISS Program IT services required to support end users.

1.4.2.3.3 ISS Program Loan Pool

- (a) The Contractor shall serve as the primary point of contact for ISS Program loan pool services required to support end users.

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- (b) The Contractor shall develop and maintain user guides/desktop instructions for services that require user self-installation.
- (c) The Contractor shall develop and maintain procedures for appropriate property management of the ISS Program loan pool products for check-in/check-out and regular inventorying.
- (d) The Contractor shall report property losses on a per-incident basis and as soon as possible following an incident.
- (e) The Contractor shall develop, implement, and maintain a standard laptop software load consistent with the approved JSC laptop load and any related policies and practices for the loan pool laptops.
- (f) The Contractor shall augment standard load configuration in order to support specific user requirements. Activities typically include configuration for tunneling, data transfers, and loading requested software.

1.4.2.3.4 The Contractor shall receive work authorizations via Information Resources Directorate Customer Service System Service Requests (SRs) and ISS Program Action Service Requests (ASRs), loan pool requests, and external access requests in addition to the IT project plans. The Contractor shall ensure that its internal work management and tracking systems interface seamlessly with the Information Resources Directorate Customer Service System for the purpose of receiving work authorizations and providing order status and tracking information.

1.4.2.3.5 The Contractor shall track, resolve, and report on problems associated with systems, products, and services. Problem resolution includes accepting transferred calls from the various JSC Help Desks or ISS Program Help Desks for systems under this contract and reporting resolutions back to the appropriate Help Desk or end user, as appropriate. The Contractor shall develop and maintain an on-line web-based Application Service Request Database (ASDB).

1.4.2.3.6 The Contractor shall provide desktop support services for ISS Program IT and IT services not supported by other institutional providers. Desktop support are those services which support the users' desktop environment; such as, but not limited to, loading/configuring local and network software, drivers, printers, peripherals, and data migration.

1.4.2.3.7 The Contractor shall conduct customer satisfaction surveys on all IT Operations SRs and ASRs servicing end users.

1.4.2.3.8 The Contractor shall provide assistance in space utilization, coordination / facilitation, and planning for ISS Program physical space requirements at JSC. This includes assessing requests, coordinating with the requestor(s), making recommendation, facilitating request through the implementing organization, tracking requirements through closure, and reporting.

1.4.2.3.9 The Contractor shall manage interconnection access between ISS IP/Ps and ISS Program resources. The Contractor shall work with JSC sponsors to process requests from ISS

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IP/Ps for access to ISS Program servers and applications. The Contractor shall coordinate processing of Access Control Plan (ACP) requests, IRD Service Requests (SRs) for JSC accounts, Identification (ID) management requests and other center/agency required forms for ISS IP/Ps.

1.4.2.3.10 The Contractor shall provide liaison support between the ISS Program and ISS IP/Ps. The Contractor shall coordinate with the ISS Program External Relations Office and the JSC Legal Office as required to facilitate the completion of ISS International Agreements.

1.4.2.3.11 The Contractor shall facilitate and support meetings to resolve application and network connectivity technical issues between IP/Ps and ISS Program systems.

1.5 INTERNATIONAL INTEGRATION

1.5.1 RESERVED

1.5.2 RESERVED

1.5.3 IP Elements Integration Management

The Contractor shall perform the tasks identified below to the support of IP Element Integration Management. For the purposes of this contract, “IP Elements” are defined as:

H-II Transfer Vehicle (HTV), Automated Transfer Vehicle (ATV), Mobile Servicing System (MSS), Special Purpose Dexterous Manipulator (SPDM), Unpressurized Docking Module (UDM), Service Module (SM), Docking Compartment (DC), Soyuz, Multipurpose Logistics Module (MLM), Docking Compartment Module (DCM), Progress, and visiting vehicles.

The NASA IP Element Integration Manager (EIM) provides overall management and oversight of the tasks that are necessary to integrate the IP Element into the ISS. The primary goal of IP Element Integration is to confirm the IP Element meets its ISS Program requirements (e.g., system- and segment-level specifications, Interface Requirements Documents [IRDs], Interface Control Documents [ICDs]) and is ready for flight. The NASA IP EIM also ensures that NASA meets applicable ISS requirements in support of the integration of the IP Element and complies with bilateral agreements.

The Mission Integration, Cargo Integration, and Vehicle sustaining engineering teams provide the technical expertise and resources required to execute the tasks associated with IP Element integration (e.g., subsystem-level technical review of IP Element designs) and support the NASA IP EIM in performing the tasks necessary to integrate the IP Element and deliver on-orbit to the ISS.

1.5.3.1 Systems Engineering and Integration of IP Elements

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1.5.3.1.1 Engineering Integration and Communication

- (a) The Contractor shall interface with the Program Data Integration Team to provide the book coordination function; to facilitate the technical development, coordination with IPs, management approval, and implementation of the following IP BDEALS documents: SSP 50124, NASA/CSA Bilateral Data Exchange Agreements, Lists and Schedules (BDEALS); SSP 50137, NASA/RSA BDEALS; SSP 50611, NASA/ESA BDEALS for ATV; and SSP 50614, NASA/JAXA BDEALS for HTV. The data submittals provided by the IPs via these BDEALS documents will be made available as GFD to the Contractor as defined in Addendum 2, Table 2.
- (b) The Contractor shall interface with the Mission Integration Team to provide the book coordination function; to facilitate the technical development, coordination with IPs, management approval, and implementation of the following IP BHSEALS documents: SSP 50136, NASA/RSA Bilateral Hardware and Software Agreements, List and Schedules (BHSEALS); SSP 50220, NASA/CSA Bilateral Hardware and Software Exchange Agreements, Lists and Schedules (BHSEALS); SSP 50615, NASA/NASDA BHSEALS for the H II Transfer Vehicle (HTV).
- (c) The Contractor shall distribute Element technical, programmatic and operations data for review by ISS Program teams identified in the IP Element Integration Team Lists.
- (d) The Contractor shall collect assessments and comments to the distributed Element data in (c) to ensure application of engineering and programmatic expertise in all aspects of the integration process including evaluation and definition of: bilateral documentation, interfaces, requirements changes, exchanges of data and hardware/software, development and testing, and special information requests.
- (e) The Contractor shall facilitate ISS Program Teams communications with IPs and their Contractors.
- (f) The Contractor shall maintain cognizance and technical knowledge of Element design, associated issues, and planning and schedule status.
- (g) The Contractor shall provide responses to communications and data requests from IP and ISS Program Teams in accordance with teams' schedules.
- (h) The Contractor shall coordinate shipment of items to and from the IPs with the ISS Program Shipping Coordinator in the Mission Integration Team.

1.5.3.1.2 Issue Resolution

The Contractor shall coordinate issue resolution with the IP Element Integration Teams as follows:

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- (a) Collect information for issue definition and document integration and compatibility issues and actions.
- (b) Provide inputs to teams, and track issue resolution and action items closure for all phases of IP Element integration activities through on-orbit activation and checkout.
- (c) Develop proposals, assess risks and recommend schedule for technical issues resolution.
- (d) Chair technical forums, telecons and meetings required for issue resolution.
- (e) Provide regular technical status inputs to action items database for open actions;
- (f) Provide regular technical status inputs to Schedule Management Team;
- (g) Provide regular technical status inputs to NASA IP EIM; and
- (h) Provide regular technical status inputs to other teams, boards and panels in support of the NASA IP EIM.

1.5.3.1.3 Change Engineering

The Contractor shall initiate CRs to maintain and update the ISS design and requirements baseline for IP Elements. The Contractor shall perform Change Engineering functions for IP-related CRs and other activities necessary to maintain and update the ISS design and requirements baseline for IP Elements.

1.5.3.1.4 IP Elements Acceptance and CoFR

The Contractor shall support development, coordination and maintenance of the IP CoFR implementation plans. The Contractor shall review and provide inputs to Assessment Review Plans for all IP Elements. The Contractor shall coordinate and implement the Acceptance Review Plans and Assessment Review Plans with IPs and within the ISS Program.

1.5.3.2 IP Milestone Reviews

1.5.3.2.1 Milestone Review Planning and Coordination

The Contractor shall plan and track the ISS Program teams' participation in the IP design, qualification, certification, and pre-shipment reviews to ensure compliance with ISS Program requirements and policies. The Contractor shall develop ISS Program support plans for IP Milestone Reviews in accordance with DRD PIC-II-01. The Contractor shall obtain concurrences for scheduling and support of the milestone reviews from ISS Program disciplines, teams and

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organizations and present for NASA approval. The Contractor shall track the implementation of the approved ISS Program Support Plan.

1.5.3.2.2 IP Milestone Review Participation

The Contractor shall participate in all stages of the Milestone Review, including:

- (a) Development of the Milestone Review Plan to be bilaterally concurred by NASA and the IP and post-review action closure.
- (b) Review of IP Design, Qualification and Certification Review data packages for compliance with ISS Program requirements and policies defined in IP Elements Specifications, IRDs/ICDs and other applicable bilateral and multilateral documentation.
- (c) Identification and documentation of non-compliance issues.

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1.5.3.3 ISS and Mission Integration

1.5.3.3.1 Participation in ISS Program Reviews

The Contractor shall participate in the ISS Program Milestone and Launch Package reviews identified in SSP 50200-02, Station Program Implementation Plan Volume 2: Program Planning and Manifesting, and SSP 50489, ISS Mission Integration Template, by providing inputs to reviews and planning documentation. The Contractor shall coordinate implementation of NASA Element Team functions in support of these reviews.

1.5.3.3.2 Launch Package and Increment Teams Support

The Contractor shall provide consolidated Element Team inputs to mission requirements, increment definition requirements, and manifest requirements for IP Element flights. The Contractor shall review the IP Element applicable flight and increment documentation (e.g. Increment Definition and Requirements Documents [IDRDs], manifest) and coordinate with the Launch Package Manager (LPM) and Increment Manager (IM) Teams to ensure incorporation of these requirements. The Contractor shall participate in LPM and IM teams negotiations of the requirements with the IP. For data that supports the IDRD development, the Contractor shall provide inputs to the Mission Integration Team via Requirements Request Forms as defined in SSP 50622-02, Mission Integration Data Sets Blank Book. For data that supports the IP flight manifest development, the Contractor shall provide inputs to the Mission Integration team via Manifest Requests as defined in SSP 50622-02.

1.5.3.3.3 Element Ground Processing Coordination

The Contractor shall coordinate with Kennedy Space Center (KSC) and IP regarding IP Element hardware processing in the Space Station Processing Facility (SSPF), to provide programmatic coordination including review of integrated IP Element schedules, status of hardware processing, status of action items, and development and coordination of meeting agendas. After handover of the IP Element hardware to Shuttle Integration, the Contractor shall support the Launch Package Management Teams to coordinate Element related processing issues.

1.5.3.3.4 Element Flight Operations Support

The Contractor shall coordinate with ISS Program and IP Operations Teams, the planning and implementation of IP Elements flight operations, which includes participation in ISS Program Stage Integration Reviews (SIRs) and review of the IP Element operations documentation, such as operational timelines, procedures and flight rules.

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1.5.3.3.5 Mission Support

1.5.3.3.5.1 Increment Management Center (IMC) Support

The Contractor shall staff the ISS Increment Management Center console during IP Elements assembly flights, flights involving Canadian Space Agency (CSA) robotics missions, and first-time IP visiting vehicle flights (e.g. HTV and ATV) to provide a single point of contact for Element Team coordination and resolution of mission related issues on a real time basis. The Contractor shall meet the process requirements identified in the ISS Management Center Operations Handbook (IMCOH).

1.5.3.3.5.2 Mission Evaluation Room (MER) Support

The Contractor shall staff an ISS Mission Evaluation Room (MER) console during IP assembly flights, involving CSA robotics missions, and first-time IP visiting vehicle flights (e.g. HTV and ATV) to provide a single point of contact for Element Team coordination and resolution of mission related issues on a real time basis. The Contractor shall also staff an ISS MER console on an as-needed basis after the initial IP assembly flights and first-time IP visiting vehicle flights to facilitate Element Team coordination in resolving in-flight anomalies associated with the IP Element. The Contractor shall meet the process requirements identified in OB-MER-006, ISS MER Handbook.

1.6 HUMAN SPACE FLIGHT COLLABORATION

The Contractor shall accomplish all work necessary to accommodate commercial customers to the ISS. The work will be the same or similar scope already required elsewhere in this contract SOW but will be performed in support of a NASA Reimbursable Space Act Agreement or a NASA contract.

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2.0 ISS SYSTEMS ENGINEERING, ANALYSIS, AND INTEGRATION**2.1 RESERVED****2.2 SYSTEMS ANALYSIS AND INTEGRATION**

The Contractor shall provide the ISS Program with long term strategic planning for the development and operation of the ISS. The Contractor shall provide the ISS Program with Program level requirement and interface development, integration, documentation and analysis. The Contractor shall provide multi-level increment strategic, tactical and real-time operations planning. The Contractor shall manage system and segment level integration of the ISS.

The Contractor shall perform the tasks below in accomplishing ISS systems analysis and integration. The Contractor shall use the coordinate systems defined in SSP 30219, Space Station Reference Coordinate Systems, for analysis, products, or data that is produced for ISS Program and requires the use of coordinate systems.

2.2.1 Program Requirements and Interfaces**2.2.1.1 ISS Specifications and ICDs Maintenance and IRDs**

- (a) The Contractor shall provide book coordination functions for ISS specifications, ICDs, and IRDs identified in Addendum 6 in accordance with DRDs PIC-SI-01, PIC-SI-02, and PIC-SI-03. The Contractor shall provide book coordination functions for SSP 30459, ISS Interface Control Plan, SSP 50135, ISS Interface Control Plan – NASA/RSA, and SSP 41174, ISS Interface Control Working Group (ICWG) Operating Procedures.
- (b) The Contractor shall maintain the contents of the Master File for all specifications and ICDs/IRDs.
- (c) The Contractor shall maintain tracking logs of specifications, CRs and ICD/IRD revisions and history.
- (d) The Contractor shall perform requirements traceability for SSP 41000, System Specification for the International Space Station; SSP 41160, ESA Segment Specification for Columbus; SSP 41162, Segment Specification for the United States On-Orbit Segment; SSP 41165, Segment Specification For The Japanese Experiment Module; SSP 50273, HTV Segment Specification; SSP 50312, CAM Segment Specification; SSP 50333, Cupola Segment Specification; and SSP 50439, ESA Segment Specification For The Automated Transfer Vehicle (ATV) in accordance with DRD PIC-SI-02 utilizing the Requirements Traceability Management (RTM) application identified in Addendum 4, Table 1.
- (e) The Contractor shall identify and track non-incorporated CRs to all retired, or no longer actively maintained, ISS specifications and ICDs.

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- (f) The Contractor shall review and evaluate ISS Program changes to determine if those changes impact the documents supported in paragraph 2.2.1.1(a). When impacted, appropriate change description text shall be provided to the CM function.

2.2.1.2 Coordination and Review of ISS Specifications, ICDs, and IRDs

- (a) The Contractor shall provide technical review of specifications, ICDs, and IRDs identified in Addendum 6 during ISS Program Milestone Reviews to ensure the requirements reflect the current ISS Program baseline.
- (b) The Contractor shall provide technical review and coordination of Preliminary Interface Revision Notices (PIRNs) for the documents identified in Addendum 6 and Document Change Notices (DCNs) for SSP 41150, IRD SSMB To Columbus APM; SSP 41151, IRD SSMB To JEM; SSP 41151-Appendix D, IRD SSMB To JEM, Appendix D; and SSP 41152, IRD ISPR ICD in accordance with SSP 30459, SSP 50135, and SSP 41174.

2.2.1.3 Interface Control Working Group (ICWG)

The Contractor shall perform the following ICWG technical administrative functions in accordance with SSP 41174, SSP 30459, and SSP 50135.

2.2.1.3.1 The Contractor shall maintain and update Hardware Interfaces Tracking System (HITS) database (or equivalent) identified in Addendum 2, Table 1 to develop PIRN status reports as follows:

- (a) The Contractor shall track and provide "ICD metrics" reports to include issue resolution plans on a quarterly basis.
- (b) The Contractor shall track and provide reports identifying "To Be Determined (TBDs)" on a quarterly basis.
- (c) The Contractor shall track and provide "Open Issues" reports on a quarterly basis.

2.2.1.3.2 The Contractor shall prepare, distribute, maintain and track Interface Memorandums to document official correspondence.

2.2.1.3.3 PIRN and DCN Development and Maintenance

The Contractor shall process and maintain ICD PIRNs and IRD DCNs as follows:

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- (a) The Contractor shall prepare, distribute, process, maintain, and track PIRNs for the documents identified in Addendum 6 to update ICDs.
- (b) The Contractor shall prepare, distribute, process, maintain, and track DCNs for SSP 41150, SSP 41151, SSP 41151-Appendix D, and SSP 41152 to update IRDs.

2.2.2 System Performance Analysis and Integration

The Contractor shall provide recommendations to the ISS Program management on the strategic implications of the ISS Program launch schedules, manifests, and ISS on-orbit operations, and assist in NASA's development of strategic requirements. To meet the full scope of this requirement, the Contractor shall provide systems engineering and integration support for development of the ISS Program strategic planning as described below, and shall report the results in accordance with DRD PIC-SI-03.

2.2.2.1 Mission Analysis and Integration

2.2.2.1.1 Attitude Requirements

- (a) The Contractor shall develop, coordinate and obtain ISS Program approval of the flight attitude requirements for the ISS operations. These requirements balance the needs of power, thermal, propellant, Guidance, Navigation, and Control (GN&C) momentum management capability, micro-gravity, natural and induced environmental factors, communications, visiting vehicle, and other factors. The GFD tools Channelized Energy Balance Tool (CEBT) and Integrated Energy Balance Tool (IEBT) are available to support this function.
- (b) The Contractor shall input and maintain approved attitude requirements in SSP 50699-03, The Space Station Certification Baseline Document.

2.2.2.1.2 Altitude Strategy

The Contractor shall develop and coordinate the ISS altitude strategy. The altitude strategy will include:

- Analysis for inadvertent entry risk,
- Projected on-orbit lifetime,
- ISS propellant availability,
- ISS propellant delivery requirements and capabilities,
- Micro-gravity environment,
- Natural and induced environmental factors (including crew radiation exposure) as analyzed by NASA institutional resources and by the Vehicle Sustaining Engineering Team, and

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- Launch vehicle performance.

Such analysis will also verify that ISS performs within hardware certifications, through consultation with the Vehicle Sustaining Engineering Team and the Cargo Mission Team.

The ISS Altitude Strategy is documented in SSP 50110, Multi-Increment Manifest Document, and SSP 50112, Operations Summary Document (OSD), and is implemented through the individual IDRD for each increment. If strategic conditions change after the baselining of the OSD, the Contractor shall update the OSD and provide the applicable ISS Altitude Strategy data to the Mission Integration Team via Requirement Request Forms as defined in SSP 50622-02, Section 4.0. The GFD tools Strategic Planning Evaluation And Resource Model Analysis (SPEARMAN), Station Reboost Analysis Program (STRAP) and Total Propellant Summary (TPS) are available to support this function. The work process and data exchanges by which altitude and propellant are forecast are maintained within the Vehicle Integrated Performance and Resources (VIPER) Interface Document (VID) Volume 1: Altitude and Propellant: a routinely-updated bilateral process agreement with IP Russia that is maintained within the PI&C contract.

2.2.2.1.3 The Contractor shall integrate the rendezvous, proximity, and other special operations requirements and constraints (e.g., contamination issues from liquid or gas venting) related to attitudes and system configurations for joint operations between the ISS and all ISS Visiting Vehicles, including but not limited to the Russian Progress and Soyuz, U.S. Space Shuttle, European Space Agency's (ESA's) ATV, Japan Aerospace Exploration Agency's (JAXA's) HTV, the Crew Exploration Vehicle (CEV), the Commercial Orbital Transfer Services (COTS) vehicles and the ISS Commercial Resupply Vehicles. "Integrate" is defined as the coordination (between visiting vehicle providers and the ISS Program) of requirements for attitudes for docking, undocking, and special operations, array and radiator positioning, resultant power balances, visiting vehicle power demands from the ISS, operations restrictions for contamination and structural loads, and other similar issues.

2.2.2.1.3.1 Comply with U.S. requirements for information security to assess analyses and data incorporating the classified capabilities of the U.S. national technical means, wherever necessary to complete the assigned special operations assessments.

2.2.2.1.4 The Contractor shall provide predictions for the ISS solar beta angle, based on the ISS altitude strategy and atmospheric variations bounded by the Marshall Space Flight Center (MSFC) 5% and 95% atmospheres. In addition, the Contractor shall develop and maintain the BASEPLATE report (as defined in 2.2.2.1.6) using the atmospheric variation bounded by the Russian Planning Atmosphere.

2.2.2.1.5 The Contractor shall develop, track, and maintain the strategic and track, and maintain the tactical allocation of Vehicle technical resources, including establishment of Program technical reserves of propellant, water, oxygen, and nitrogen. The process by which consumables are forecast is maintained within the VIPER Interface Document (VID) Volume 2: Consumables: a routinely-updated multilateral process agreement with IP Russia, ESA, and JAXA that is maintained within the PI&C contract.

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2.2.2.1.5.1 Taking into account the strategic needs of the ISS Program and the predicted flight sequence, the Contractor shall coordinate projected water delivery and usage rates with ISS Program suppliers and users of water, including the Vehicle Sustaining Engineering Team and the ISS Payloads Integration Team.

2.2.2.1.6 The Contractor shall maintain and utilize detailed Beta, Attitude, Significant Events PLAnning TEmpLete (BASEPLATE) or equivalent. The BASEPLATE shall show the day-to-day timeline of all flights to the ISS vehicle, Shuttle missions and Increment EVAs (calling out Russian Segment and U.S. Segment assembly, maintenance and science EVAs), launch and landing days (flight duration), dock and undock days (docked mission duration), robotics, Increment definition, crew rotation, and ISS vehicle major reconfigurations, including ISS assembly and visiting vehicle relocations. This product will assess the viability of the flight sequence plan and is developed in parallel with the baseline flight plan for the tactical and strategic timeframe. The Contractor shall maintain the BASEPLATE for the baseline ISS Program plan and perform trade studies of assembly sequence options under consideration. The Contractor shall deliver the detailed BASEPLATE electronically and in color printed format.

2.2.2.1.7 Applications and Data Systems

The Contractor shall maintain the applications identified below to support strategic planning and in response to differences or anomalies between the expected performance data and on-orbit performance data as provided by the Vehicle Sustaining Engineering Team.

- Station Reboost Analysis Program (STRAP),
- Total Propellant Summary (TPS),
- Station Channelized Electrical Power Transfer and Energy Resources (SCEPTER),
- External Configuration Tracking Tool (ExCATT),
- Traffic Resource Analysis Model (TRAM) or any upgraded traffic modeling tool,
- Beta, Attitude, Significant Events PLAnning TEmpLete (BASEPLATE), and
- SIR Issue Tracking (SIT) database.

2.2.2.2 Mission Requirements and Support

2.2.2.2.1 The Contractor shall provide strategic mission requirements, concepts, constraints, and resource allocations to the ISS Mission Integration Team and NASA Mission Operations Directorate (MOD) to support development of mission planning, flight rules, and training.

2.2.2.2.2 Review of Operations Products

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- (a) The Contractor shall review (via ongoing technical interactions and reviews of CRs) the ISS operations plans and procedures to ensure that all ISS Program strategic technical constraints are satisfied, such as equipment operating and non-operating thermal limits, time phased power generation and demands, fault tolerance and recovery capability, structural loads, control authority of the attitude control systems, and mechanical interferences.
- (b) The Contractor shall review crew procedures that are related to systems activation or rechannelization, or to environment interactions including (but not limited to) plasma, plumes, contamination, or meteoroid debris to ensure that all strategic technical constraints are satisfied.
- (c) The Contractor shall review flight rules CRs to ensure that all strategic technical constraints are satisfied.

2.2.2.2.3 Stage Integration Reviews (SIRs)

The Contractor shall report to ISS Program management the issues and closure plans identified during SIRs.

2.2.2.2.4 The Contractor shall provide technical support as needed to MOD and to the ISS Program through assessment of strategic ISS Program (including IP/P) impacts during resolution of significant in-flight anomalies. Such support includes provision of technical assessments that individual specialists within the Contractor's employ may be able to provide to the MER, working with the Vehicle Sustaining Engineering Team on a temporary basis to resolve mission or life-critical issues.

2.2.2.3 System Analysis and Integration

The Contractor shall provide manage the technical assumptions to support mission analysis and integration. The Contractor shall provide overall system and segment level analysis and integration of the ISS and associated interfaces, as described below, including: the USOS, IP/Ps, Government Furnished Equipment (GFE) and ISS ground systems. This includes the ISS external interfaces, such as the ISS/National Space Transportation System (NSTS), other visiting vehicles, and the ISS/Payloads interfaces (does not penetrate beyond the interface to the Space Shuttle for the payloads).

2.2.2.3.1 The Contractor shall facilitate and coordinate the development of ISS operational procedures that ensure each external component's thermal survivability from launch to its activation on the ISS.

2.2.2.3.2 The Contractor shall provide recommendations to ISS Program management for approval in the development and prioritization of tasks performed by NASA institutional resources for the following analyses, as warranted by changing conditions or assumptions:

- Shuttle/ISS induced loads, and

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- Plume heating analyses.

2.2.2.3.3 The Contractor shall develop and provide strategic assessments of ISS Thermal System Performance (TSP) throughout assembly phases and other significant ISS operations.

2.2.2.3.4 The Contractor shall develop and provide heat load allocations for the ISS Program end-user community, based upon active heat rejection margin analysis.

2.2.2.3.5 The Contractor shall develop and provide power allocations for the ISS Program end-user community, based upon Integrated Energy Balance margin analysis. The process by which energy balance is forecast is maintained within the VIPER Interface Document (VID) Volume 3: Energy Balance: a routinely-updated bilateral agreement with IP Russia that is maintained within the PI&C contract.

2.2.2.3.6 The Contractor shall provide systems integration support for assembly, off-nominal situations, and strategic operations that involve the Electrical Power Subsystem.

2.2.3 Strategic Planning, Assembly and Configuration Engineering

The Strategic Planning and Configuration Engineering function provides the ISS Program with long term flight-external configuration and robotic operations planning including the ISS Strategic Flight Program (SFP), crew rotation plans, ISS external configuration to include kinematic and static configurations, drawings, and Computer Aided Design (CAD) models for launch and on-orbit configurations. In addition this team will ensure the external/internal physical configuration, mass properties and robotics operations data needed by the ISS Program users is provided by maximizing commonality and efficiency through the use of common tools, software and platforms.

2.2.3.1 Strategic Planning and Integration

The NASA Strategic Planning and Integration Team function is responsible for the evaluation and integration of the total set of programmatic, schedule, technical, and cost factors impacting the SFP; documenting the resulting SFP requirements and constraints; and developing a flight plan in consideration of the aforementioned factors. The strategic flight planning activity includes all tasks associated with the definition of a viable SFP.

The Contractor shall maintain a technical knowledge of the requirements, capabilities, and constraints and their interrelationships necessary to develop the SFP. The requirements, constraints, and allocations include:

- Up-mass and down-mass requirements and strategic mass and volume allocations for propellant, crew support (food, water, air, etc.), research, and maintenance;
- Capabilities and scheduling constraints of visiting vehicles that berth robotically or dock to the ISS vehicle;

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- Top-level manifesting requirements and constraints of pressurized and unpressurized cargo carriers;
- Crew rotation requirements and constraints;
- Cargo element assembly and manifest requirements and constraints;
- Flight and increment Extravehicular Activity (EVA) content, quantity, and scheduling constraints;
- Other operational requirements and constraints such as robotics, viewing, clearances, etc.; and
- On-orbit vehicle assembly flows and the associated on-orbit hardware configuration for flight, intermediate, and stage configurations.

The detailed tasks necessary to implement the functions described above are defined below.

2.2.3.1.1 The Contractor shall develop and maintain the Integrated Flight Schedule (IFS) showing the baseline (per SSP 54100, IDRD Flight Program, and SSP 50110) and planned (as documented in open SSP 54100 and SSP 50110 ISS Program CRs) launch, dock, undock and landing dates for all tactical and strategic flights to the ISS vehicle. This product documents the increment definition, durations and the baseline directive numbers. The Contractor shall maintain and update the Reference Flight Plan Overview. This product, a combination of the tactical (as defined by SSP 54100) and strategic baselined SFP (as defined by SSP 50110) that provides an integrated ISS Program schedule. This product also shows the proposed updates to all flights, which are contained, in open ISS Program CRs under review.

2.2.3.1.2 The Contractor shall develop and maintain the ISS Program Crew Rotation Plan Assessments in accordance with SSP 50261-01, Generic Groundrules, Requirements, and Constraints Part I: Strategic and Tactical Planning. The Crew Rotation Plan Assessments trade the documented crew rotation requirements against mission manifest and operational impacts.

2.2.3.1.3 The Contractor shall utilize BASEPLATE or equivalent.

2.2.3.1.4 The Contractor shall develop and maintain a summary Flight Program Figure that is an overview of the detailed BASEPLATE. The Flight Program Figure shall be capable of incorporation into Microsoft Word and PowerPoint.

2.2.3.1.5 Strategic Flight Program (SFP) Development

- (a) The Contractor shall collect requirements and constraints and develop a SFP implementing the requirements for ISS Program approval. The Contractor shall identify issues and requirement conflicts and develop options for ISS Program resolution.

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(b) SSP 50110 is the document that baselines the SFP. For Multi-Increment Manifest (MIM) development, the Contractor shall collect inputs, develop the revised document, conduct document reviews, resolve technical issues and actions, prepare the ISS Program CR and board presentations, and prepare the final document for approval. The MIM baselines the strategic assembly sequence, docking port utilization, crew rotation plan, flight schedule, top-level launch and return manifest, sub-element number, altitude, ISS carrier attach system and carrier utilization plan, and launch vehicle.

(c) The Contractor shall revise and maintain the SFP Overview. This is the strategic flight plan that is sometimes developed prior to the Mission Integration and Operations for development of IDRDs and Flight Integration products.

2.2.3.1.6 The Contractor shall integrate the inputs and provide the ISS Program approved Flight and Increment Overview Guidelines to the MOD for development of Flight Overviews to support SFP development.

2.2.3.1.7 The Contractor shall assess proposed tactical and strategic mission updates and identify issues and/or impacts to the SFP.

2.2.3.1.8 The Contractor shall integrate and coordinate the strategic ISS Program/Space Shuttle Program (SSP) flight inputs and provide these flight inputs to the SSP.

2.2.3.1.9 The Contractor shall represent the Strategic Planning and Integration Team as a technical expert at boards and panels.

2.2.3.1.10 The Contractor shall provide technical inputs and review assessments for other ISS Program documents or reviews such as:

- SSP 50112, Operations Summary Document
- SSP 50261-01, Generic Groundrules, Requirements, and Constraints Part 1: Strategic and Tactical Planning
- SSP 540XX, Increment Definition and Requirements Documents (IDRDs);
- SSP 50200-01, Station Program Implementation Plan, Volume 1: Station Program Management Plan, and SSP 50200-02, Station Program Implementation Plan Volume 2: Program Planning and Manifesting;
- SSP 54100, IDRD Flight Program (FP);
- Flight Specific Data Files (Payload Development Retrieval System [PDRS]/EVA and Rendezvous) for Flight Operations Review (FOR); and
- Post-Increment Evaluation Reports (PIERs).

2.2.3.1.11 The Contractor shall coordinate and resolve issues and actions that impact the SFP manifest, configuration, and flight sequence that do not occur during the MIM development timeframe. The Contractor shall perform ISS strategic studies by identifying issues and developing the technical strategic plans, resolution plans, and conducting necessary trade

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studies and analyses required for formulating recommended solutions to complex multidiscipline and programmatic issues.

2.2.3.1.12 The Contractor shall maintain and update SSP 50112 and provide inputs to the specific IDRD to establish strategic allocations of resources for operations planning. The Contractor shall provide updates to the Mission Integration Team for inclusion in the appropriate IDRD via Requirements Request Forms as defined in SSP 50622-02, Section 4.0. Details of the contents of this task are outlined in SOW subordinate paragraphs.

2.2.3.1.13 The Contractor shall develop and provide launch vehicle ascent and descent strategic mass and volume allocations to the ISS Program end-user community.

2.2.3.1.14 The Contractor shall perform the ISS strategic resupply/logistics (traffic model) analyses, which are the integrated feasibility assessments to ensure strategic resupply, payload, and return cargo requirements using the planned international fleet of vehicles.

2.2.3.1.15 Applications and Data Systems

The Contractor shall maintain the applications and data systems identified below in response to differences or anomalies between the expected performance data and on-orbit performance data as provided by the Vehicle Sustaining Engineering Team.

- Strategic Planning Evaluation And Resource Model Analysis (SPEARMAN)
- Traffic Model Spreadsheets
- Action Item Tracking Database
- CR Tracking Database

2.2.3.1.16 The Contractor shall maintain the Strategic Flight Plan website to record and communicate Strategic Planning and Integration activities to the NASA community.

2.2.3.2 External Configuration Analysis Modeling and Mass Properties

The NASA External Configuration Team function is responsible for managing the definition and documentation of the integrated strategic and tactical external vehicle configuration plans and assessing any changes to the baseline. This responsibility includes working with the Vehicle Sustaining Engineering and Robotic Team to assess and develop on-orbit stage docking/berthing and robotic kinematic configurations and operations, develop the ISS System Top-Level Assembly drawings for each stage of the ISS vehicle, and prepare, maintain, and submit mass properties drawings.

2.2.3.2.1 The Contractor shall maintain a technical understanding of the on-orbit vehicle assembly flows and the associated on-orbit hardware configuration for flight, intermediate, and stage configurations. The Contractor shall also maintain a technical understanding of the assembly and configuration constraints necessary to manage the strategic, tactical, and real-time external vehicle configuration to include robotic kinematic operations..

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2.2.3.2.2 The Contractor shall assess, integrate, and coordinate requirements associated to the ISS external vehicle's configuration, including evaluating change requests that impact the external configuration for flight, intermediate, and/or stage configurations.

2.2.3.2.3 The Contractor shall maintain and update the Assembly Matrix. The Contractor shall collect inputs, develop the revised matrix, conduct matrix reviews, resolve technical issues and actions, prepare the ISS Program CR, prepare board presentations, and prepare the final matrix for approval.

The Multi-Increment Manifest provides the Strategic Flight Plan and manifest. SSP 54100 contains the tactical Flight Plan.

2.2.3.2.4 The Contractor shall maintain and update SSP 30219, which documents the ISS reference coordinate systems for major elements and robotically handled items. The Contractor shall collect inputs, develop the revised document, conduct document reviews, resolve technical issues and actions, prepare the ISS Program CR and board presentations, and prepare the final document for approval.

2.2.3.2.5 CAD Model Development Support

(a) The Contractor shall support the CAD Model User Technical Interchange Meetings (TIMs) and the Measurement TIMs hosted by the ISS USOS Sustaining Engineering Contract. These TIMs determine which element and cargo element components in the 3D CAD models, in the launch and on-orbit configurations, are validated to drawings and determine the required as-built measurements. The Contractor shall provide inputs necessary to get validated and as-built CAD models.

(b) The Contractor shall ensure that the external physical configuration data needed by the ISS Program/SSP users is provided by interfacing with the Vehicle Sustaining Engineering Team to gather physical configuration data from detailed CAD models.

2.2.3.2.6 The Contractor shall develop and gain concurrence of external configuration protocols with the IP and any other affected teams.

2.2.3.2.7 The Contractor shall develop and review the mission-specific ISS/SSP On-Orbit ICD, Section 3, Physical Configuration, for each Shuttle flight. The ISS Program/SSP ICD documents the ISS and Shuttle data from the Orbiter rendezvous through the Orbiter departure. The blank book format is contained in NSTS-21000-IDD-ISS, Shuttle Orbiter/International Space Station Interface Definition Document, Section S.3. The Contractor shall update the Section S.3 blank book to incorporate the mission specific configuration data and figures.

2.2.3.2.8 The Contractor shall develop and distribute the Vehicle Configuration Joint Technical Working Group (JTWG) mission-specific vehicle configuration data source letters to

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the ISS Program/SSP community. These letters are produced at the L-9/10 months, in support of the SSP Cargo Integration Review (CIR), and L-4 months.

2.2.3.2.9 The Contractor shall track the location of external configuration items. The Contractor shall track the current and planned locations, as well as the historical hardware movement of needed configuration items such as external Logistics and Maintenance ORUs (spares stowed on orbit), EVA equipment/hardware, visiting vehicles, attach point utilization, standard and non-standard external stowage, utilization, and internal items that stowed externally. The Contractor shall perform 3D CAD model analysis to determine stowage of new or relocated external configuration items and determine any impact to follow-on assembly or flight activities. The Contractor shall utilize the ExCATT, or equivalent, and provide web-based reports accessible by the ISS Program.

2.2.3.2.10 The Contractor shall develop revisions of JSC 26557 Volumes 1 and 2, On-orbit Assembly Modeling and Mass Properties Data Book (Blue Book), in accordance with DRD PIC-SI-04.

2.2.3.2.11 The Contractor shall convert launch and return mass properties provided by the Vehicle Sustaining Engineering Team to on-orbit mass properties for the development of JSC 26557 Volumes 1 and 2, Blue Book. The Contractor shall review the Vehicle Sustaining Engineering Team L-30 day delivery of pre-flight on-orbit ISS Program mass properties prior to every ISS flight docking, undocking and redocking. The Contractor shall coordinate and resolve issues due to mass properties differences between the L-30 day data delivery and JSC 26557.

2.2.3.2.12 The Contractor shall perform ISS static and kinematic clearance, external stowage, mass properties, operations analysis using approved 3D CAD models. The Contractor shall perform clearance analysis for docking vehicles assessing the clearance of dynamic docking and robotic envelopes and verifying docking/robotic requirements.

2.2.3.2.13 The Contractor shall develop and deliver simplified 3D CAD models and videos to NASA organizations, the IPs, and Commercial Partners in multi-media/data files such as Pro-E, Enigma, STEP, PDF and FLASH. These models shall be delivered to other parties such as universities, NASA centers, and other commercial interests, as required. The files shall be delivered in the user's format using the Contractor's 3D CAD tool capability.

2.2.3.2.14 The Contractor shall provide electronic dimensioned and non-dimensioned hidden line or shaded drawings to support the development of ISS Program documentation. These drawings shall be provided in TIFF, GIF, Enigma, and/or PICT formats.

2.2.3.2.15 The Contractor shall provide launch vehicle ascent and descent weight assessments to support manifest assessments in the strategic timeframe.

2.2.3.2.16 The Contractor shall participate in the OM2 Working Group.

The Contractor shall provide technical inputs and review for ISS Program documents or reviews.

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The Contractor shall provide technical support as needed to MOD and to the ISS Program through assessment of strategic ISS Program (including IP/P) impacts during resolution of significant in-flight anomalies. Such support includes provision of technical assessments that individual specialists within the Contractor's employ may be able to provide to the MER, working with the Vehicle Sustaining Engineering Team on a temporary basis to resolve mission or life-critical issues.

2.2.3.2.17 The Contractor shall maintain an External Configuration Analysis website to record and communicate external configuration analysis modeling and mass properties, kinematic operations action items requests/status and analyses results to the NASA community.

2.2.3.2.18 The Contractor shall perform SSRMS and SPDM kinematics/graphical analysis associated with robotic manipulation of ISS elements to ensure ISS robotic assembly, maintenance and sustaining operations. The contractor shall deliver a kinematics analysis report documenting the assessment performed.

2.2.3.3 Internal Volume Configuration (IVC)

2.2.3.3.1 The Contractor shall update and maintain SSP 50261-01, paragraph 3.12, Interior Volume Configuration. The Contractor shall provide criteria for evaluating and prioritizing ISS internal volume demands in accordance with these requirements. Such criteria are put into practice in cooperation with the Internal Volume Configuration Working Group (IVCWG), Mission Integration Team, and IP/Ps and in accordance with SSP 50005, ISS Flight Crew Integration Standards. Examples of such volume criteria include minimum Intravehicular Activity (IVA) translation path clearance, worksite operational volumes, emergency module safing and crew health stabilization requirements, access to routine maintenance locations, and the clearance around air duct openings and utility outlets when selecting nominal on-orbit locations for ISS cargo.

2.2.3.3.2 The Contractor shall update and maintain the planned ISS IVA topology in SSP 50564, ISS Interior Volume Configuration Document, to include Vehicle, payloads, systems, racks and select GFE items. The Contractor shall coordinate and provide modified topologies, as required, to allow for IVC studies due to changes to the ISS assembly sequence or changes to the ISS configuration.

2.2.3.3.3 The Contractor shall develop and maintain a unified and validated 3D CAD model of the ISS interior, in accordance with DRD PIC-SI-05, to support graphic analysis of the ISS interior configuration at every stage documented in SSP 50564.

2.2.3.3.4 The Contractor shall graphically analyze the acceptability of the ISS planned configurations based on the documented pass/fail criteria identified in SSP 50261-01. The Contractor shall document the results, including any exception closures, and review with the IVCWG and the ISS Program. The Contractor shall provide and maintain an IVC stage analysis

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verification plan via coordination of the ISS graphic analysis with the IP/P community, the Mission Integration Team and the IVCWG.

2.2.3.3.5 The Contractor shall develop situation unique analyses, as required, to provide inputs to ISS Program planning and issue resolution.

2.2.3.3.6 The Contractor shall maintain the IVCWG website to record and communicate IVC activities to the NASA community.

2.2.3.3.7 The Contractor shall participate in hardware design reviews to ensure identification and resolution of potential issues regarding design features that, if not resolved, would result in SSP 50261-01 IVC exceptions. This activity includes review of hardware design drawings, volume envelopes, and assessment of protrusions into the crew and/or other hardware operational volumes as defined in SSP 50261-01.

2.2.3.3.8 The Contractor shall participate in the OM2 Working Group.

2.2.3.3.9 The Contractor shall provide technical inputs and review for Payload Protrusion PIRNS and other ISS Program documents or reviews.

2.2.3.3.10 The Contractor shall provide management and technical support to ISS Program to maintain an ISS IVA physical environment integration function. This includes chairing the IVCWG and documenting the IVC Program processes.

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3.0 SPACECRAFT**3.1 ISS SPACECRAFT MANAGEMENT****3.1.1 Vehicle Technical Integration**

The Contractor shall perform Engineering and Technical Services and Technical Integration Support to the offices within the ISS Program.

3.1.1.1 Meeting Support

The Contractor shall coordinate and schedule meetings and telecons for the ISS Program Offices. The Contractor shall coordinate meeting logistics, including:

- (a) Scheduling conference rooms,
- (b) Notifying attendees,
- (c) Requesting interpretation and translation services,
- (d) Requesting local transportation services for Russian Foreign Nationals, when necessary,
- (e) Scheduling and set-up of equipment, and
- (f) Preparation of meeting materials.

3.1.1.2 The Contractor shall develop and distribute meeting agendas and minutes. The Contractor shall submit the meeting minutes to the meeting chair for approval within 2 business days following the meeting.

3.1.1.3 The Contractor shall maintain and track action items for each meeting and meeting series. The Contractor shall capture any assigned actions items and the associated actionees and notify the actionees. The Contractor shall document action closure and provide status and disposition of actions.

3.1.1.4 The Contractor shall develop and maintain Points of Contact (POC) lists, distribution lists and team calendars of events. The Contractor shall distribute event notifications, and other pertinent information.

3.1.1.5 CoFR Process Support

The Contractor shall provide CoFR support for all vehicles to include:

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SSP 42097, Part 1	PMA TO Node 3 ICD, Part 2, Appendix E To U.S. Pressurized Elements Core (Node 2 To PMA2) ICD, Part 1	X	
SSP 42097, Part 2	PMA 2 & 3 to U.S. Pressurized Elements core (Node 2 to pma2) ICD, Part 2	X	
SSP 42121, Part 1	USOS PMA-1 to FGB Part 1	X	X
SSP 42121, Part 2	USOS PMA-1 to FGB Part 2	X	X
SSP 42124, Part 1	ITS S0 To Node 2 ICD, Part 1	X	
SSP 42124, Part 2	ITS S0 To Node 2 ICD, Part 2	X	
SSP 42137 Part 1	ITS S0 to Node 3 ICD (Part 1)	X	X
SSP 42137 Part 2	ITS S0 to Node 3 ICD (Part 2)	X	X
SSP 50010	Standards for ISS Program Documentation	X	X
SSP 50013	ISS Information Systems Plan	X	
SSP 50021	ISS Safety Requirements Document	X	X
SSP 50033	NASA/CSA Bilateral Integration and Verification Plan (BIVP)	X	X
SSP 50034	NASA/ESA BIVP	X	X
SSP 50035	NASA/NASDA BIVP	X	X
SSP 50038	Computer-Based Control system Safety Requirements	X	
SSP 50062	NASA/CSA Bilateral Safety and Mission Assurance Requirements	X	X
SSP 50094	NASA/RSA Joint Specs/Standards for the Russian Segment	X	X
SSP 50098 Part 1	SSMB to RWS ICD (Part 1)	X	X
SSP 50098 Part 2	SSMB to RWS ICD (Part 2)	X	X
SSP 50101	NASA/RSA BIVP	X	X
SSP 50102	NASA-ASI Bilateral Integration and Verification Plan (BIVP)	X	
SSP 50104	Portable Breathing Apparatus Standard ICD	X	
SSP 50110	Multi-Increment Manifest	X	X
SSP 50112	Operations Summery Document	X	X
SSP 50123	Configuration Management Handbook	X	X
SSP 50123-ASI	Configuration Management Handbook, Agenzia Spaziale Italiana Annex	X	X
SSP 50123-CSA	Configuration Management Handbook, Canadian Space Agency Annex	X	X

PROGRAM INTEGRATION AND CONTROL

SSP 50123-ESA	Configuration Management Handbook, European Space Agency Annex	X	X
SSP 50123-INPE	Configuration Management Handbook, Brazilian Space Agency Handbook	X	
SSP 50123-JAXA	Configuration Management Handbook, Japanese Aerospace Exploration Agency Annex	X	X
SSP 50123-Roscosmos	Configuration Management Handbook, Federal Space Agency Annex	X	X
SSP 50124	NASA/CSA BDEALS	X	
SSP 50126	NASA/JAXA BDEALS for JEM	X	
SSP 50127	NASA/ESA BDEALS for Columbus	X	
SSP 50128	FGB Spec	X	X
SSP 50129	Interface Requirements Document International Space Station (ISS) To Automated Transfer Vehicle (ATV)	X	X
SSP 50135	ISS Interface Control Plan – NASA/RSA	X	X
SSP 50136	NASA/RSA BHSEALS		X
SSP 50137	NASA/RSA BDEALS	X	
SSP 50145	NASA/NASDA Bilateral Safety and Product Assurance Requirements	X	X
SSP 50146	NASA/RSA Bilateral Safety and Mission Assurance Process Requirements for ISS	X	X
SSP 50172	Data Management Handbook	X	X
SSP 50175	ISS Risk Management Plan	X	X
SSP 50177	Government Furnished Data (GFE) Description Document	X	
SSP 50182	NASA/ASI Bilateral Safety and Product Assurance Requirements	X	X
SSP 50190	ISS Program Contingency Action Plan	X	X
SSP 50191	NASA/ESA Bilateral Safety and Product Assurance Requirements	X	X
SSP 50200-01-ANX E	Station Program Implementation Plan Volume 1, Station Program Management Plan, Annex E: S&MA/Program Risk Plan; ISS Risk Management Plan	X	
SSP 50200-01-ANX M	Station Program Implementation Plan Volume 1, Station Program Management Plan, Annex M	X	
SSP 50220	NASA/CSA BHSEALS		X

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SSP 50222	ISS Program Capital Investment Process (CIP)	X	
SSP 50223	International Space Station Export Control	X	
SSP 50227, Part 1	Russian Segment (SSP, SM, And FGB) To PDGF/SSRMS ICD	X	X
SSP 50227, Part 2	Russian Segment (SSP, SM, And FGB) To PDGF/SSRMS ICD	X	X
SSP 50231	ISS Safety and Mission Assurance/Program Risk Certification of Flight Readiness Implementation Plan	X	X
SSP 50251, Part 1	ARIS To Pressurized Element ICD, Part 1	X	
SSP 50251, Part 2	ARIS To Pressurized Element ICD, Part 2	X	
SSP 50273	HTV Segment Specification	X	X
SSP 50281	Node 2 NASA/ASI Bilateral Integration and Verification Plan (BIVP)	X	
SSP 50287	Hardware/Software Acceptance Process	X	
SSP 50309 Part 1	Node 3 to Hab ICD (Part 1)	X	X
SSP 50309 Part 2	Node 3 to Hab ICD (Part 2)	X	X
SSP 50310	Atmosphere Revitalization Subsystem (ARS) Rack To Node 3 ICD	X	X
SSP 50314	WRS#2 to Node 3 ICD	X	X
SSP 50315	WRS#1 to Node 3 ICD	X	X
SSP 50316	OGS to Node 3 ICD	X	X
SSP 50318	PIDS for Node 3	X	X
SSP 50322	Vehicle Office CoFR Implementation Plan	X	
SSP 50333	Cupola Segment Specification	X	X
SSP 50334	ESA/RSA BIVP	X	X
SSP 50346	NASA/ASI Nodes Bilateral Safety and Product Assurance Requirements	X	X
SSP 50352	NASA/AEB Bilateral Data Exchange agreements, list and schedules (BDEALS)	X	
SSP 50357	Node 2 to Crew Quarters ICD	X	X
SSP 50397	Node 3 Waste and Hygiene Compartment ICD	X	X
SSP 50406	NASA/ESA Bilateral Integration & Verification Plan for Cupola	X	
SSP 50407	NASA/ESA BDEALS for Cupola	X	

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SSP 50420	NASA/NASDA BIVP for HTV	X	X
SSP 50420-HTV1	NASA/Japan Aerospace Exploration Agency (JAXA) Bilateral Integration & Verification Plan (BIVP) For H-II Transfer Vehicle (HTV) Annex 2, HTV1	X	X
SSP 50420-HTV2	NASA/Japan Aerospace Exploration Agency (JAXA) Bilateral Integration & Verification Plan (BIVP) For H-II Transfer Vehicle (HTV) Annex 2, HTV2	X	X
SSP 50421	Program Planning and Control Office CoFR Implementation Plan	X	X
SSP 40437	Safety and Mission Assurance/Program Risk Mission Evaluation Room Console Operations Handbook for ISS Program	X	
SSP 50438 Part 1	ISS to HTV ICD (Part 1)	X	X
SSP 50438 Part 2	ISS to HTV ICD (Part 2)	X	X
SSP 50439	ESA Segment Specification for the ATV	X	X
SSP 50469	OCS to RWS ICD	X	X
SSP 50470	CHECS Specification	X	X
SSP 50504	ISS Configuration Document	X	
SSP 50562	ISS Off-Nominal Situation Plan (IPOP)	X	
SSP 50564	ISS Interior Volume Configuration Document	X	X
SSP 50597	Wardroom PTRS	X	X
SSP 50599	WHC PTRS	X	X
SSP 50611	NASA/ESA BDEALS for ATV	X	
SSP 50614	NASA/JAXA BDERALS for HTV	X	
SSP 50615	NASA/NASDA BHSEALS for HTV		X
SSP 50622-02	Mission Integration Data Sets Blank Book (MIDSBB)	X	
SSP 50622-03	Operations Data Set Blank Book (ODSBB)	X	
SSP 50659	ISS Program Work Breakdown Structure (WBS)	X	
SSP 50670	ARED to ISS ICD	X	
SSP 50699-03	ISS Certification Baseline Document, Volume 3	X	
SSP 50706	Change Engineer Handbook	X	X
SSP 50722	HTV to Battery ICD	X	X

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SSP 50724	NASA/ESA Node 3 Bilateral Safety and Product Assurance Requirements	X	
SSP 50744	Data Impoundment Processing Procedures	X	X
SSP 50754	HTV Crew Monitoring Document	X	
SSP 50764	Modification Kit Process	X	
SSP 50781	Crew Quarters PTRS	X	X
SSP 50786 Part 1	USOS to MLM ICD (Part 1)	X	X
SSP 50786 Part 2	USOS to MLM ICD (Part 2)	X	X
SSP 50808	ISS to COTS IRD	X	X
SSP 50809	ISS to COTS ICD for SpaceX	X	X
SSP 50821	Requirements Specification for the ISS Second Treadmill (T2)	X	X
SSP 50826	ISS Six Crew Strategic Planning Document	X	
SSP 50831	CUCU IRD	X	X
SSP 50832	COTS Cargo ICD	X	
SSP 50833	ISS Program Cargo Transport Requirements Document	X	X
SSP 50834	ISS Vehicle Office Management and Hardware Development Plan	X	X
SSP 50839	ISS Program Operations Description	X	
SSP 50843	ISS Program to Orion Interface Control Document	X	X
SSP 50850	SpaceX JIVTP	X	X
SSP 50851	Orion JIVTP	X	X
SSP 50852	HTV Verification Matrix	X	X
SSP 50861	Crew Quarters to JEM ICD	X	X
SSP 50868	NASA/Orbital JIVTP	X	X
SSP 50869	PMM PIDS	X	X
SSP 50875	Sabatier Spec and OGS Rack ICD	X	X
SSP TBD	ISS to OBSS ICD	X	
SSP TBD	ISS to External Carrier (TBD) ICD	X	

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SSP 50885	ISS to COTS ICD for Cygnus (Orbital)	X	X
SSP 50901	ISP to MPLM ICD	X	X
SSP 50908	NASA/ASI Permanent Multipurpose Module (PMM) Project Joint Implementation Plan (JIP)	X	X
SSP 50911	PMM Bilateral Hardware and Software Exchange Agreements, Lists, and Schedules	X	X
SSP 50914	NASA/ASI Bilateral Data Exchange Agreements, List and Schedules for the Permanent Multipurpose Module PMM	X	X
SSP 52055	EXPRESS Logistics Carrier Development Spec	X	
SSP TBD	CEV ICD	X	
SSP TBD	ISS Crew Transportation and services Requirements Document	X	

Book Coordinate	Provide administrative support to update document and process change paper
Book Manage	Provide technical support on content of the document

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SECTION C
Addendum 7

Addendum 7 - LIST Addendum 7 - LIST OF GOVERNMENT FURNISHED PROPERTY

L/I	ECN	DESCRIPTION	MFG	MODEL #	SERIAL #	FSC CODE	Room	Qty	Unit of Measure	Unit Cost	Extended Cost
1	2083049	COPYING, MACHINE	PANASONIC IND CO DIV OF MATSU	DP-2500	FAG09R00344	7025	212	1	ea	\$9,619.00	\$9,619.00
2	2083050	COPYING, MACHINE	PANASONIC IND CO DIV OF MATSU	FP-D605	GAU24H00107	7025	212	1	ea	\$5,148.00	\$5,148.00
3	2139878	RACK, ELECTRICAL EQUIPMENT	POLYCOM INC	ERK4020	NONEX	5975	202	1	ea	\$12,523.00	\$12,523.00
4	2139879	RACK, ELECTRICAL EQUIPMENT	POLYCOM INC	ERK4020	NONEX	5975	215	1	ea	\$36,019.00	\$36,019.00
5	2139932	CONFERENCE MIXER (8CH)	POLYCOM INC	EF2280	D20332001297	5805	202	1	ea	\$4,092.00	\$4,092.00
6	2139933	CONFERENCE MIXER (8CH)	POLYCOM INC	EF2280	D20332001287	5805	202	1	ea	\$4,092.00	\$4,092.00
7	2139934	CONFERENCE MIXER (8CH)	POLYCOM INC	EF2280	D2032900114E	5805	202	1	ea	\$4,092.00	\$4,092.00
8	2139935	CONFERENCE MIXER (8CH)	POLYCOM INC	EF2280	D203320012C1	5805	215	1	ea	\$4,092.00	\$4,092.00
9	2139936	CONFERENCE MIXER (8CH)	POLYCOM INC	EF2280	D2033200127B	5805	202	1	ea	\$4,092.00	\$4,092.00
10	2139938	CONFERENCE MIXER (8CH)	POLYCOM INC	EF2280	D20332001210	5805	215	1	ea	\$4,092.00	\$4,092.00
11	2139940	CONFERENCE MIXER (8CH)	POLYCOM INC	EF2280	D20332001219	5805	215	1	ea	\$4,092.00	\$4,092.00
12	2139941	CONFERENCE MIXER (4CH)	POLYCOM INC	EF2241	D20330001200	5805	215	1	ea	\$3,501.00	\$3,501.00
13	2139942	CONFERENCE MIXER (4CH)	POLYCOM INC	EF2241	D203300011F8	5805	215	1	ea	\$3,501.00	\$3,501.00
14	2139943	UHF DUAL RECEIVERS	AUDIO TECHNICA US INC	ESW-220	1250024	5805	215	1	ea	\$1,177.00	\$1,177.00
15	2139944	UHF DUAL RECEIVERS	AUDIO TECHNICA US INC	ESW-220	2220007	5805	215	1	ea	\$1,177.00	\$1,177.00
16	2139945	UHF DUAL RECEIVERS	AUDIO TECHNICA US INC	ESW-220	2220006	5805	202	1	ea	\$1,177.00	\$1,177.00
17	2142793	CONFERENCE MIXER (8CH)	POLYCOM INC	EF2280	D20503100531	5805	202	1	ea	\$4,094.00	\$4,094.00
18	2142794	TELEPHONE HYDRID	POLYCOM INC	EF2201	D203300011D2	5805	202	1	ea	\$1,450.00	\$1,450.00
19	2142795	TELEPHONE HYDRID	POLYCOM INC	EF2201	D20330001175	5805	215	1	ea	\$1,450.00	\$1,450.00
20	2145860	PROJECTOR, ADP	DELL COMPUTER CORP F-PC'S LTD	3400MP	5Z58081	6730	215	1	ea	\$1,533.00	\$1,533.00
21	2149926	PROJECTOR, ADP	DELL COMPUTER CORP F-PC'S LTD	3400MP	6417081	6730	215	1	ea	\$1,416.00	\$1,416.00
22	2150795	RECORDER, VIDEO CASSETTE	TOSHIBA AMERICAN INFO SYSTEMS	NONE	42643165	5836	201A	1	ea	\$100.00	\$100.00
23	2153765	PROJECTOR, ADP	DELL COMPUTER CORP F-PC'S LTD	3400MP	D375081	6730	215	1	ea	\$1,278.00	\$1,278.00
24	2153907	PROJECTOR, ADP	DELL COMPUTER CORP F-PC'S LTD	3400MP	CN0M8591S008165M0058	6730	215	1	ea	\$1,278.00	\$1,278.00
25	2153908	PROJECTOR, ADP	DELL COMPUTER CORP F-PC'S LTD	3400MP	G375081	6730	212C	1	ea	\$1,278.00	\$1,278.00
26	2153909	PROJECTOR, ADP	DELL COMPUTER CORP F-PC'S LTD	3400MP	F375081	6730	215	1	ea	\$1,278.00	\$1,278.00
27	2154179	PLOTTER, ADP	HEWLETT-PACKARD CO	C7780C	SG67SD205C	7025	212	1	ea	\$7,265.00	\$7,265.00
28	2155069	CONFERENCE MIXER (8CH)	POLYCOM INC	EF2280	RD2074170231F	5805	215	1	ea	\$4,092.00	\$4,092.00
29	2225285	ROUTER, COMMUNICATIONS	CISCO SYSTEMS INC	2006 6AP	FTX110180AN	7025	202	1	ea	\$4,624.00	\$4,624.00
30	2228525	PROJECTOR, ADP	DELL COMPUTER CORP F-PC'S LTD	M209X	75PR0D1	6730	211	1	ea	\$1,084.00	\$1,084.00
31	2512121	PROJECTOR	SHARP ELECTRONICS CORP	HG-PH50X	601413481	6730	201A	1	ea	\$4,504.00	\$4,504.00
32	2512122	PROJECTOR	SHARP ELECTRONICS CORP	HG-PH50X	509412800	6730	213	1	ea	\$4,504.00	\$4,504.00
33	2512123	PROJECTOR	SHARP ELECTRONICS CORP	HG-PH50X	509412803	6730	214	1	ea	\$4,504.00	\$4,504.00
34	2512124	PROJECTOR	SHARP ELECTRONICS CORP	HG-PH50X	509412802	6730	201A	1	ea	\$4,504.00	\$4,504.00

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35	N/A	Speaker Unit	CROWN	Ch1	808348	5805	202	1	ea	\$100.00	\$100.00
36	N/A	Speaker Unit	CROWN	Ch1	808279	5805	202	1	ea	\$100.00	\$100.00
37	N/A	Speaker Unit	CROWN	Ch1	8001220442	5805	202	1	ea	\$100.00	\$100.00
38	N/A	Speaker Unit	CROWN	Ch1	808277	5805	215	1	ea	\$100.00	\$100.00
39	N/A	Speaker Unit	CROWN	Ch1	808252	5805	215	1	ea	\$100.00	\$100.00
40	N/A	8 Port 10/100 Switch	Cisco	SD208	REG10F3015052	5805	215	1	ea	\$700.00	\$700.00
41	N/A	Access Point	ARUBA	AP61	NW09724	5805	204A	1	ea	\$60.00	\$60.00
42	N/A	Access Point	ARUBA	AP61	NW09725	5805	205B	1	ea	\$60.00	\$60.00
43	N/A	Access Point	AIR-LAP1131AG-A-K9VO3	CIS. AIRONET1130 AG	FTX 1005T1QL	5805	209	1	ea	\$60.00	\$60.00
44	N/A	Access Point	ARUBA	AP61	NW09743	5805	214	1	ea	\$60.00	\$60.00
45	N/A	Access Point	AIR-LAP1131AG-A-K9VO3	CIS. AIRONET1130 AG	FTX 1009T0H4	5805	213	1	ea	\$60.00	\$60.00
46	N/A	Amplifier	CROWN	180MVA	8500258751	5805	212C	1	ea	\$100.00	\$100.00
47	N/A	Antennae	AMX	MVP-TDS	596510E0765296	5805	215	1	ea	\$50.00	\$50.00
48	N/A	DSL Modem	Netopia	Netopia	22552344	5805	202	1	ea	\$50.00	\$50.00
49	N/A	DSL Modem 5/1/08	Netopia, Inc.	3347-02-1002	32687032	5805	200	1	ea	\$50.00	\$50.00
50	N/A	DVD Player	Daewood	5800	204AKE40411	5836	215	1	ea	\$75.00	\$75.00
51	N/A	Equalizer	DBX	EF-2280	00009771	5805	212C	1	ea	\$125.00	\$125.00
52	N/A	Feedback Reducer	SHURE	DFR11EQ	S5033720169	5805	202	1	ea	\$160.00	\$160.00
53	N/A	Feedback Reducer	SHURE	DFR11EQ	S5033720176	5805	202	1	ea	\$160.00	\$160.00
54	N/A	Feedback Reducer	SHURE	DFR11EQ	S5033529566	5805	215	1	ea	\$160.00	\$160.00
55	N/A	Feedback Reducer	SHURE	DFR11EQ	S5033720175	5805	215	1	ea	\$160.00	\$160.00
56	N/A	PC Viewer	InFocus	480CX	9A07453	7025	215	1	ea	\$45.00	\$45.00
57	N/A	Power Center	MidAtlantic	PD-915R	N/A	7025	215	1	ea	\$85.00	\$85.00
58	N/A	Projector	3M 9800	9000AJK	624669	6730	214	1	ea	\$100.00	\$100.00
59	N/A	Receiver	AKG	SR 450	576258T-21T01	5805	212C	1	ea	\$229.00	\$229.00
60	N/A	Receiver	AKG	SR 450	585954T-21T01	5805	212C	1	ea	\$229.00	\$229.00
61	N/A	Spare Access Points-3	AIR-LAP1131AG-A-K9VO3	CIS. AIRONET1130 AG	FTX094711TY, UM, W5	5805	202	1	ea	\$60.00	\$60.00
62	N/A	Telecon Unit	POLYCOM SoundStation	2201-03308-001 H	1603510019F1	5805	204A(215)	1	ea	\$250.00	\$250.00
63	N/A	Telecon Unit	POLYCOM SoundStation	2201-03308-001 H	160352001BF0	5805	205A(215)	1	ea	\$250.00	\$250.00
64	N/A	Telecon Unit	POLYCOM SoundStation	2201-03308-001 H	N/A	5805	205C	1	ea	\$250.00	\$250.00
65	N/A	Telecon Unit	POLYCOM SoundStation Premier	2215-03738-001 Rev R	32044701529	5805	212C	1	ea	\$250.00	\$250.00
66	N/A	Telecon Unit	POLYCOM SoundStation	2201-03309-001-J	160417000595	5805	215(Spare)204	1	ea	\$250.00	\$250.00
67	N/A	TV	Panasonic	CT20011E	NA11780664	5836	200	1	ea	\$150.00	\$150.00
68	N/A	TV	Samsung	TXK2767	392R301619A	5836	212A	1	ea	\$150.00	\$150.00

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SECTION C
Addendum 7

69	N/A	VCR	Emerson	VCP 675	3003D6640Y24700	5836	200	1	ea	\$75.00	\$75.00
70	N/A	VCR	Panasonic	PV-8450	H8VC14199	5836	212A	1	ea	\$75.00	\$75.00
71	N/A	Viewgraph Projector	3M	3M9800	630959	6730	201A(212B)	1	ea	\$100.00	\$100.00
72	N/A	Viewgraph Projector	3M	3M9800	630960	6730	201B(215)	1	ea	\$100.00	\$100.00
73	N/A	Viewgraph Projector	3M	3M9800	631175	6730	204B(215)	1	ea	\$100.00	\$100.00
Total										\$158,060.00	

PROGRAM INTEGRATION AND CONTROL

SECTION D**PACKAGING AND MARKING****D.1 LISTING OF CLAUSES INCORPORATED BY REFERENCE**

NOTICE: The following contract clauses pertinent to this section are hereby incorporated by reference:

I. FEDERAL ACQUISITION REGULATION (48 CFR CHAPTER 1)

CLAUSE NUMBER	DATE	TITLE
None included by reference		

II. NASA FAR SUPPLEMENT (48 CFR CHAPTER 18) CLAUSES

CLAUSE NUMBER	DATE	TITLE
None included by reference		

D.2 NFS 1852.211-70 PACKAGING, HANDLING, AND TRANSPORTATION (SEPT 2005)

- (a) The Contractor shall comply with NASA Procedural Requirements (NPR) 6000.1, Requirements for Packaging, Handling, and Transportation for Aeronautical and Space Systems, Equipment, and Associated Components, as may be supplemented by the Statement of Work or specifications of this contract, for all items designated as Class I, II, or III.
- (b) The Contractor's packaging, handling, and transportation procedures may be used, in whole or in part, subject to the written approval of the Contracting Officer, provided (1) the Contractor's procedures are not in conflict with any requirements of this contract, and (2) the requirements of this contract shall take precedence in the event of any conflict with the Contractor's procedures.
- (c) The Contractor must place the requirements of this clause in all subcontracts for items that will become components of deliverable Class I, II, or III items.

(End of clause)
[END OF SECTION]

PROGRAM INTEGRATION AND CONTROL

SECTION E - INSPECTION AND ACCEPTANCE**E.1 LISTING OF CLAUSES INCORPORATED BY REFERENCE**

NOTICE: The following contract clauses pertinent to this section are hereby incorporated by reference:

I. FEDERAL ACQUISITION REGULATION (48 CFR CHAPTER 1)

CLAUSE NUMBER	DATE	TITLE
52.246-4	AUG 1996	INSPECTION OF SERVICES—FIXED-PRICE

II. NASA FAR SUPPLEMENT (48 CFR CHAPTER 18) CLAUSES

CLAUSE NUMBER	DATE	TITLE
None included by reference		

E.2 FAR 52.246-11 HIGHER-LEVEL CONTRACT QUALITY REQUIREMENT (FEB 1999)

The Contractor shall comply with the higher-level quality standard selected below:

<u>Quality Standard</u>	<u>Description of Quality Standard</u>
SAE AS 9100	Quality Systems-Aerospace-model for Quality Assurance in Design, Development, Production, Installation and Servicing

(End of clause)

**E.3 NFS 1852.246-72 MATERIAL INSPECTION AND RECEIVING REPORT (AUG 2003)
(Not applicable to reports that are to be delivered)**

- (a) At the time of each delivery to the Government under this contract, the Contractor shall furnish a Material Inspection and Receiving Report (DD Form 250 series) prepared in 6 (including original) copies, 1 original and 5 copies.

PROGRAM INTEGRATION AND CONTROL

- (b) The Contractor shall prepare the DD Form 250 in accordance with NASA FAR Supplement 1846.6. The Contractor shall enclose the copies of the DD Form 250 in the package or seal them in a waterproof envelope, which shall be securely attached to the exterior of the package in the most protected location.
- (c) When more than one package is involved in a shipment, the Contractor shall list on the DD Form 250, as additional information, the quantity of packages and the package numbers. The Contractor shall forward the DD Form 250 with the lowest numbered package of the shipment and print the words CONTAINS DD FORM 250 on the package.

(End of clause)

E.4 SURVEILLANCE PLAN

In accordance with FAR 46.103(a), Contracting Office Responsibilities, and FAR 37.604, Quality Assurance Surveillance Plans:

A Surveillance Plan will be developed and implemented by the Contracting Officer's Technical Representative as a part of the contract administration and monitoring activities conducted to ensure that the Government receives products and services that conform to contract requirements. The nature and extent of surveillance contemplated in this plan will be based, in part, on the content described in the Annual Performance Feedback Plan (Evaluation of: Price, Schedule, Quality, and Timeliness) (reference Section H.7) and the Surveillance Plan (Invoices, Program Management Reviews, Performance Standards/Metrics, Contract Deliverables) (reference Attachment J-5).

(End of clause)

[END OF SECTION]

SECTION F - DELIVERIES OR PERFORMANCE**F.1 LISTING OF CLAUSES INCORPORATED BY REFERENCE**

NOTICE: The following contract clauses pertinent to this section are hereby incorporated by reference:

I. FEDERAL ACQUISITION REGULATION (48 CFR CHAPTER 1)

CLAUSE NUMBER	DATE	TITLE
52.242-15	AUG 1989	STOP-WORK ORDER
52.247-34	NOV 1991	F.O.B. DESTINATION

II. NASA FAR SUPPLEMENT (48 CFR CHAPTER 18) CLAUSES

CLAUSE NUMBER	DATE	TITLE
None included by reference		

F.2 PERIOD OF PERFORMANCE

The period of performance of this contract shall be from **October 1, 2009, through September 30, 2012**. Task Orders placed prior to the expiration date of this contract shall remain in full force and effect until deliveries have been completed and payment has been made.

(End of clause)

F.3 PLACE OF PERFORMANCE

The primary effort required under this contract shall be performed at or near the Lyndon B. Johnson Space Center (JSC) and at other locations as covered by the Statement of Work (SOW).

(End of clause)

F.4 FAR 52.217-9 OPTION TO EXTEND THE TERM OF THE CONTRACT
(MAR 2000)

"a. The Government may extend the term of this contract by written notice to the Contractor within **30 days prior to the date set forth in Clause F.2, Period of Performance**; provided that the Government gives the Contractor a preliminary written notice of its intent to extend at least **60 days** before the contract expires. The preliminary notice does not commit the Government to an extension.

b. If the Government exercises this option, the extended contract shall be considered to include this option clause.

c. The total duration of this contract, including the exercise of any options under this clause, shall not exceed **5 Years**.

OPTION 1: (October 1, 2012 – September 30, 2013)

1. Clause **B.2, Contract Value**, will be modified as follows:

Indefinite Delivery Indefinite Quantity (IDIQ) – Limitations not to exceed amount is increased by **\$17,571,474M**.

Indefinite Deliver Indefinite Quantity (IDIQ) Travel and Materials not to exceed amount is increased by \$1,000,000.

B. Clause F.2 is hereby deleted and replaced by the following Clause F.2:

"F.2 PERIOD OF PERFORMANCE

The period of performance of this contract shall be from **October 1, 2009, through September 30, 2013**. Task Orders placed prior to the expiration date of this contract shall remain in full force and effect until deliveries have been completed and payment has been made."

OPTION 2: (October 1, 2013 – September 30, 2014)

1. Clause **B.2, Contract Value**, will be modified as follows:

Indefinite Delivery Indefinite Quantity (IDIQ) – Limitations not to exceed amount is increased by **\$16,541,264M**.

Indefinite Deliver Indefinite Quantity (IDIQ) Travel and Materials not to exceed amount is increased by \$1,000,000.

2. Clause **F.2 Period of Performance** is hereby deleted and replaced by the following Clause F.2:

"F.2 PERIOD OF PERFORMANCE

The period of performance of this contract shall be from **October 1, 2009, through September 30, 2014**. Task Orders placed prior to the expiration date of this contract shall remain in full force and effect until deliveries have been completed and payment has been made."

(END OF CLAUSE)"

F.5 SHIPPING INSTRUCTIONS

All documentation shall be shipped to the addresses cited in Attachment J-1, Data Requirements List – Data Requirements Descriptions. Shipment of all other items shall be as follows:

Parcel Post Shipments and Freight Shipments

Ship to: Transportation Officer,
National Aeronautics and Space Administration
Central Receiving, Building 421
Lyndon B. Johnson Space Center
2101 NASA Parkway
Houston, TX 77058-3696

Mark for: Accountable Property Officer
Mark with: Purchase Request No: N/A
Mark with: Contract Number: TBD
For reissue to: _____
(Name)(Mail Code)(Bldg.)(Rm.)

(End of clause)

F.6 PHASE-IN AND CLOSE-OUT

- (a) Contractor Phase-In. The services provided by this contract are vital to the Government's overall effort, and continuity must be maintained at a consistently high level without disruption. The Contractor is expected to meet full performance requirements from the start date of the base contract period. The Phase-In period shall not exceed 60 calendar days prior to the start date of the base contract period. Office space will not be provided by the Government during the Phase-In period. The Contractor shall participate in a weekly meeting with the incumbent contractor(s) to discuss/identify problems or areas requiring attention during this Phase-In period. The Contractor shall provide a Phase-In Plan in accordance with Section L, Part II – Instructions For Proposal Preparation.

The total firm fixed price of Phase-In is identified in Clause B.2 "Contract Value - Phase-In (Firm Fixed Price)." Any costs incurred in excess of this amount shall be unallowable under this or any other Government contract.

- (b) Contractor Close-Out. The contractor shall close-out at contract end in a cooperative manner with the Government and new contractor to allow for continuity of services and smooth transition. Close-Out activities shall be accomplished in accordance with FAR 52.237-3, Continuity of Services. The Contractor shall accomplish Close-Out in accordance with DRD PIC-PR-02, Contract Close-out Plan. Contractor's cooperation and compliance with this clause will be considered as part of the final Annual Performance Feedback pursuant to Clause H.7, Annual Performance Feedback.

(End of clause)

[END OF SECTION]

SECTION G – CONTRACT ADMINISTRATION DATA**G.1 LISTING OF CLAUSES INCORPORATED BY REFERENCE**

NOTICE: The following contract clauses pertinent to this section are hereby incorporated by reference:

I. FEDERAL ACQUISITION REGULATION (48 CFR CHAPTER 1)

CLAUSE NUMBER	DATE	TITLE
52.232-1	APR 1984	PAYMENTS

II. NASA FAR SUPPLEMENT (48 CFR CHAPTER 18) CLAUSES

CLAUSE NUMBER	DATE	TITLE
1852.227-86	DEC 1987	COMMERCIAL COMPUTER SOFTWARE LICENSING

G.2 FAR 52.204-9 PERSONAL IDENTITY VERIFICATION OF CONTRACTOR PERSONNEL (SEPT 2007)

- (a) The Contractor shall comply with agency personal identity verification procedures identified in the contract that implement Homeland Security Presidential Directive-12 (HSPD-12), Office of Management and Budget (OMB) guidance M-05-24 and Federal Information Processing Standards Publication (FIPS PUB) Number 201.
- (b) The Contractor shall insert this clause in all subcontracts when the subcontractor is required to have routine physical access to a Federally-controlled facility and/or routine access to a Federally-controlled information system.

(End of clause)

G.3 NFS 1852.227-72 DESIGNATION OF NEW TECHNOLOGY REPRESENTATIVE AND PATENT REPRESENTATIVE (JUL 1997)

- (a) For purposes of administration of the clause of this contract entitled "New Technology" or "Patent Rights--Retention by the Contractor (Short Form)," whichever is included, the following named representatives are hereby designated by the Contracting Officer to administer such clause:

Title	Office Code	Address (including zip code)
New Technology Representative	AT	NASA, Lyndon B. Johnson Space Center Technology Transfer and Commercialization Office Houston, TX 77058
Patent Representative	AL	Patent Counsel Office of Chief Counsel NASA, Lyndon B. Johnson Space Center Houston, TX 77058

- (b) Reports of reportable items, and disclosure of subject inventions, interim reports, final reports, utilization reports, and other reports required by the clause, as well as any correspondence with respect to such matters, should be directed to the New Technology Representative unless transmitted in response to correspondence or request from the Patent Representative. Inquiries or requests regarding disposition of rights, election of rights, or related matters should be directed to the Patent Representative. This clause shall be included in any subcontract hereunder requiring a "New Technology" clause or "Patent Rights--Retention by the Contractor (Short Form)" clause, unless otherwise authorized or directed by the Contracting Officer. The respective responsibilities and authorities of the above-named representatives are set forth in 1827.305-370 of the NASA FAR Supplement.

(End of clause)

G.4 NFS 1852.242-70 TECHNICAL DIRECTION (SEPT 1993)

- (a) Performance of the work under this contract is subject to the written technical direction of the Contracting Officer's Technical Representative (COTR), who shall be specifically appointed by the Contracting Officer in writing in accordance with NASA FAR Supplement 1842.270. "Technical direction" means a directive to the Contractor that approves approaches, solutions, designs, or refinements; fills in details or otherwise completes the general description of work or documentation items; shifts emphasis among work areas or tasks; or furnishes similar instruction to the Contractor. Technical direction includes requiring studies and pursuit of certain lines of inquiry regarding matters within the general tasks and requirements in Section C of this contract.
- (b) The COTR does not have the authority to, and shall not, issue any instruction purporting to be technical direction that--
- (1) Constitutes an assignment of additional work outside the Statement of Work;

- (2) Constitutes a change as defined in the changes clause;
 - (3) Constitutes a basis for any increase or decrease in the total estimated contract cost, the fixed fee (if any), or the time required for contract performance;
 - (4) Changes any of the expressed terms, conditions, or specifications of the contract; or
 - (5) Interferes with the Contractor's rights to perform the terms and conditions of the contract.
- (c) All technical direction shall be issued in writing by the COTR.
- (d) The Contractor shall proceed promptly with the performance of the technical direction duly issued by the COTR in the manner prescribed by this clause and within the COTR's authority. If, in the Contractor's opinion, any instruction or direction by the COTR falls within any of the categories defined in paragraph (b) above, the Contractor shall not proceed but shall notify the Contracting Officer in writing within 5 days after receiving it and shall request the Contracting Officer to either issue an appropriate contract modification within a reasonable time or advise the Contractor in writing within 30 days that the instruction or direction is--
- (1) Rescinded in its entirety; or
 - (2) Within the requirements of the contract and does not constitute a change under the Changes clause of the contract, and that the Contractor should proceed promptly with its performance.
- (e) A failure of the Contractor and Contracting Officer to agree that the instruction or direction is both within the requirements of the contract and does not constitute a change under the Changes clause, or a failure to agree upon the contract action to be taken with respect to the instruction or direction, shall be subject to the Disputes clause of this contract.
- (f) Any action(s) taken by the Contractor in response to any direction given by any person other than the Contracting Officer or the COTR shall be at the Contractor's risk.

(End of clause)

G.5 NFS 1852.245-71 INSTALLATION-ACCOUNTABLE GOVERNMENT PROPERTY
(SEPT 2007) ALTERNATE I (SEPT 2007) (DEVIATION)

(a) The Government property described in paragraph (c) of this clause may be made available to the Contractor on a no-charge basis for use in performance of this contract. This property shall be utilized only within the physical confines of the NASA installation that provided the property unless authorized by the Contracting Officer under (b)(1)(iv). Under this clause, the Government retains accountability for, and title to, the property, and the Contractor shall comply with the following:

- NASA Procedural Requirements (NPR) 4100.1, NASA Materials Inventory Management Manual
- NASA Procedural Requirements (NPR) 4200.1, NASA Equipment Management Procedural Requirements
- NASA Procedural Requirement (NPR) 4300.1, NASA Personal Property Disposal Procedural Requirements
- Johnson Work Instruction (JWI) 4210.2, JSC Instructions for Control of Program Stock

JSC will provide the Contractor with all applicable regulations, handbooks, and other materials that may be required.

Property not recorded in NASA property systems must be managed in accordance with the requirements of FAR 52.245-1.

The Contractor shall establish and adhere to a system of written procedures to assure continued, effective management control and compliance with these user responsibilities. Such procedures must include holding employees liable, when appropriate, for loss, damage, or destruction of Government property.

(b) (1) The official accountable recordkeeping, financial control, and reporting of the property subject to this clause shall be retained by the Government and accomplished within NASA management information systems prescribed by the installation Supply and Equipment Management Officer (SEMO) and Financial Management Officer. If this contract provides for the Contractor to acquire property, title to which will vest in the Government, the following additional procedures apply:

- (i) The Contractor shall not utilize the installation's central receiving facility for receipt of Contractor-acquired property. However, the Contractor shall provide listings suitable for establishing accountable records of all such property received, on a monthly basis, to the SEMO.
- (ii) The Contractor shall furnish a copy of each purchase order, prior to delivery by the vendor, to the installation central receiving area.
- (iii) The Contractor shall establish a record of the property as required by FAR 52.245-1, Government Property, and furnish to the Industrial Property Officer a DD Form 1149, Requisition and Invoice/Shipping Document, (or installation equivalent) to

transfer accountability to the Government within 5 working days after receipt of the property by the Contractor. The Contractor is accountable for all Contractor-acquired property until the property is transferred to the Government's accountability.

- (iv) Contractor use of Government property at an off-site location and off-site subcontractor use require advance approval of the Contracting Officer and notification of the Industrial Property Officer. The property shall be considered Government furnished and the Contractor shall assume accountability and financial reporting responsibility. The Contractor shall establish records and property control procedures and maintain the property in accordance with the requirements of FAR 52.245-1, Government Property, until its return to the installation. NASA Procedural Requirements related to property loans shall not apply to offsite use of property by Contractors.
- (2) After transfer of accountability to the Government, the Contractor shall continue to maintain such internal records as are necessary to execute the user responsibilities identified in paragraph (a) of this clause and document the acquisition, billing, and disposition of the property. These records and supporting documentation shall be made available, upon request, to the SEMO and any other authorized representatives of the Contracting Officer.
- (c) The following property and services are provided if checked.
 - ☒ (1) Office space, work area space, and utilities. Government telephones are available for official purposes only.
 - ☒ (2) Office furniture.
 - ☒ (3) Property listed in Section C, Addendum 4, List of Installation Accountable Property and Services Table(s) 1 – 7.
 - (i) If the Contractor acquires property, title to which vests in the Government pursuant to other provisions of this contract, this property also shall become accountable to the Government upon its entry into Government records.
 - (ii) The Contractor shall not bring to the installation for use under this contract any property owned or leased by the Contractor, or other property that the Contractor is accountable for under any other Government contract, without the Contracting Officer's prior written approval.
 - ☐ (4) Supplies from stores stock.
 - ☒ (5) Publications and blank forms stocked by the installation.

- X (6) Safety and fire protection for Contractor personnel and facilities.
- X (7) Installation service facilities: Section C, Addendum 4 – List of Installation Accountable Property and Services, page C-A4-1.
- X (8) Medical treatment of a first-aid nature for Contractor personnel injuries or illnesses sustained during on-site duty.
- X (9) Cafeteria privileges for Contractor employees during normal operating hours.
- X (10) Building maintenance for facilities occupied by Contractor personnel.
- X (11) Moving and hauling for office moves, movement of large equipment, and delivery of supplies. Moving services may be provided on-site, as approved by the Contracting Officer.

(End of clause)

G.6 NFS 1852.245-73 FINANCIAL REPORTING OF NASA PROPERTY IN THE CUSTODY OF CONTRACTORS (SEPT 2007)

- (a) The Contractor shall submit annually a NASA Form (NF) 1018, NASA Property in the Custody of Contractors, in accordance with the provisions of 1845.505-14, the instructions on the form, subpart 1845.71, and any supplemental instructions for the current reporting period issued by NASA.
- (b) (1) Subcontractor use of NF 1018 is not required by this clause; however, the Contractor shall include data on property in the possession of subcontractors in the annual NF 1018.
- (2) The Contractor shall mail the original signed NF 1018 directly to the cognizant NASA Center Deputy Chief Financial Officer, Finance, unless the Contractor uses the NF 1018 Electronic Submission System (NESS) for report preparation and submission.
- (3) One copy shall be submitted (through the Department of Defense [DoD] Property Administrator if contract administration has been delegated to DoD) to the following address: [Insert name and address of appropriate NASA Center office], unless the Contractor uses the NF 1018 Electronic Submission System (NESS) for report preparation and submission.
- (c) (1) The annual reporting period shall be from October 1 of each year through September 30 of the following year. The report shall be submitted in time to be received by October 15. The information contained in these reports is entered into the NASA accounting

system to reflect current asset values for agency financial statement purposes. Therefore, it is essential that required reports be received no later than October 15. Some activity may be estimated for the month of September, if necessary, to ensure the NF 1018 is received when due. However, Contractors' procedures must document the process for developing these estimates based on planned activity such as planned purchases or NASA Form 533 (NF 533 Contractor Financial Management Report) cost estimates. It should be supported and documented by historical experience or other corroborating evidence, and be retained in accordance with FAR Subpart 4.7, Contractor Records Retention. Contractors shall validate the reasonableness of the estimates and associated methodology by comparing them to the actual activity once that data is available, and adjust them accordingly. In addition, differences between the estimated cost and actual cost must be adjusted during the next reporting period. Contractors shall have formal policies and procedures, which address the validation of NF 1018 data, including data from subcontractors, and the identification and timely reporting of errors. The objective of this validation is to ensure that information reported is accurate and in compliance with the NASA FAR Supplement. If errors are discovered on NF 1018 after submission, the Contractor shall contact the cognizant NASA Center Industrial Property Officer (IPO) within 30 days after discovery of the error to discuss corrective action.

- (2) The Contracting Officer may, in NASA's interest, withhold payment until a reserve not exceeding \$25,000 or 5 percent of the amount of the contract, whichever is less, has been set aside, if the Contractor fails to submit annual NF 1018 reports in accordance with 1845.505-14 and any supplemental instructions for the current reporting period issued by NASA. Such reserve shall be withheld until the Contracting Officer has determined that NASA has received the required reports. The withholding of any amount or the subsequent payment thereof shall not be construed as a waiver of any Government right.
- (d) A final report shall be submitted within 30 days after disposition of all property subject to reporting when the contract performance period is complete in accordance with (b)(1) through (3) of this clause.

(End of clause)

G.7 NFS 1852.245-75 PROPERTY MANAGEMENT CHANGES (SEPT 2007) (DEVIATION)

- (a) The Contractor shall submit any changes to standards and practices used for management and control of Government property under this contract to the assigned property administrator and Industrial Property Officer (IPO), prior to making the change whenever the change –
 - (1) Employs a standard that allows increase in thresholds or changes the timing for reporting loss, damage, or destruction of property;

- (2) Alters physical inventory timing or procedures;
 - (3) Alters recordkeeping practices;
 - (4) Alters practices for recording the transport or delivery of Government property; or
 - (5) Alters practices for disposition of Government property.
- (b) The Contractor shall contact the IPO at:

Michael Caputo
NASA/JSC/JA
2101 NASA Parkway
Houston, TX 77058-3696

281-483-7909
michael.caputo-1@nasa.gov

(End of clause)

G.8 NFS 1852.245-76 LIST OF GOVERNMENT PROPERTY FURNISHED PURSUANT TO FAR 52.245-1 (SEPT 2007) (DEVIATION)

- (a) For performance of work under this contract, the Government will make available Government property identified below or in, Section C, Addendum 7 – List of Government Furnished Property, Table 1, of this contract on a no-charge-for-use basis pursuant to the clause at FAR 52.245-1, Government Property. The Contractor shall use this property in the performance of this contract within the physical borders of the installation which may include buildings and space owned or directly leased by NASA in close proximity to the installation, and at other location(s) as may be approved by the Contracting Officer. Under FAR 52.245-1, the Contractor is accountable for the identified property.

Item Description	Acquisition Date	Acquisition Cost	Quantity	If equipment
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See Section C Addendum 7 List of Government Furnished Property, Table 1				Manufacturer	Model	Serial Number
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(End of clause)

G.9 NFS 1852.245-82 OCCUPANCY MANAGEMENT REQUIREMENTS (SEPT 2007)
(DEVIATION)

(a) In addition to the requirements of the clause at FAR 52.245-1, Government Property, the Contractor shall comply with the following in performance of work in and around Government real property:

- (1) NPD 8800.14, Policy for Real Property Management
- (2) NPR 8831.2, Facilities Maintenance Management
- (3) J69W-01, Real Property Management
- (4) J69W-02, Facility Space Allocation and Utilization
- (5) JPD 4310.1, National Historic Landmark Preservation

[Insert any additional Center occupancy requirements here]

- (b) The Contractor shall obtain the written approval of the Contracting Officer before installing or removing Contractor-owned property onto or into any Government real property or when movement of Contractor-owned property may damage or destroy Government-owned property. The Contractor shall restore damaged property to its original condition at the Contractor's expense.
- (c) The Contractor shall not acquire, construct or install any fixed improvement or structural alterations in Government buildings or other real property without the advance, written approval of the Contracting Officer. Fixed improvement or structural alterations, as used herein, means any alteration or improvement in the nature of the building or other real property that, after completion, cannot be removed without substantial loss of value or damage to the premises. Title to such property shall vest in the Government.
- (d) The Contractor shall report any real property or any portion thereof when it is no longer required for performance under the contract, as directed by the Contracting Officer.

(End of clause)

G.10 JSC 52.204-91 SECURITY/BADGING REQUIREMENTS FOR FOREIGN NATIONAL VISITORS AND EMPLOYEES/REPRESENTATIVES OF FOREIGN CONTRACTORS
(JAN 2006)

- (a) An employee of a domestic JSC Contractor or its subcontractor who is not a United States (U.S.) citizen (foreign national) may not be admitted to the JSC site for purposes of

performing work without special arrangements. In addition, all employees or representatives of a foreign JSC Contractor/subcontractor may not be admitted to the JSC site without special arrangements. For employees as described above, advance notice must be given to the Security Office of the host installation [JSC or White Sands Test Facility (WSTF)] at least 3 weeks prior to the scheduled need for access to the site so that instructions on obtaining access may be provided. Contractors should be aware that approval for access to the site and issuance of a badge may take much longer than three weeks and sufficient lead time must be allowed to accommodate the approval process.

- (b) All visit/badge requests for persons described in (a) above must be entered in the NASA Foreign National Management System (NFMMS) for acceptance, review, concurrence and approval purposes. When an authorized company official requests a JSC or WSTF badge for site access, he/she is certifying that steps have been taken to ensure that its Contractor or subcontractor employees, visitors, or representatives will not be given access to export-controlled or classified information for which they are not authorized. The authorized company officials shall serve as the Contractor's representative(s) in certifying that all visit/badge request forms are processed in accordance with JSC and WSTF security and export control procedures. No foreign national, representative, or resident alien Contractor/subcontractor employee shall be granted access into JSC or WSTF until approved and processed through the NFMMS. Unescorted access will not be granted unless a favorable National Agency Check (NAC) has been completed by the JSC Security Office, and an approved NASA Foreign National Visitor Security/ Technology Control Plan (STTCP), (previously called the Access Control Plan) has been submitted and approved.
- (c) The Contractor agrees that it will not employ for the performance of work onsite at the JSC or WSTF any individuals who are not legally authorized to work in the U.S. If the JSC or WSTF Industrial Security Specialist or the Contracting Officer has reason to believe that any employee of the Contractor may not be legally authorized to work in the United States and/or on the contract, the Contractor may be required to furnish copies of Form I-9, Employment Eligibility Verification, U.S. Department of Labor Application for Alien Employment Certification, and any other type of employment authorization document.

The Contractor agrees to provide the information requested by the JSC or WSTF Security Office in order to comply with NASA policy directives and guidelines related to foreign visits to NASA facilities so that (1) the visitor/employee/representative may be allowed access to JSC or other NASA Centers for performance of this contract, (2) required investigations can be conducted, and (3) required annual or revalidation reports can be submitted to NASA Headquarters. All requested information must be submitted in a timely manner in accordance with instructions provided by JSC or any other Center to be visited.

(End of clause)

G.11 JSC 52.242-92 IDENTIFICATION OF EMPLOYEES (OCT 2006)

At all times while on Government property, the Contractor, subcontractors, their employees, and agents shall wear badges which will be issued by the NASA Badging and Visitor Control Office, located in Building 110 at the Johnson Space Center (JSC), or at the Main Gate at the White Sands Test Facility (WSTF). JSC employee credentials and visitor badges will be issued only between the hours of 6:00 a.m. to 7:30 p.m., Monday through Friday, and 7:30 a.m. to 3:00 p.m. on Saturday. WSTF employee badges will be issued only between the hours of 8 a.m. to 2 p.m., Monday through Friday. WSTF visitor badges will be issued on a 7-day-a-week, 24-hour-a-day basis. Resident aliens and foreign nationals/representatives shall be issued green foreign national badges.

Each individual who wears a badge shall be required to sign personally for the badge. The Contractor shall be held accountable for issued badges and all other related items and must assure that they are returned to the NASA Badging and Visitor Control Offices upon completion of work under the contract in accordance with Security Management Directive (SMD) 500-15, Security Termination Procedures. Failure to comply with the NASA Contractor termination procedures upon completion of the work (e.g., return of badges, decals, keys, Controlled Access Area cards, clearance terminations, JSC Public Key Infrastructure (PKI)/special program deletions, etc.) may result in final payment being delayed.

(End of clause)

G.12 ADVANCED AGREEMENT ON PAYMENT OF PHASE-IN PRICE

The Contractor shall be entitled to payment for the phase-in/transition period (from the date of contract award through contract start date) in the Firm-Fixed Price amount specified in Clause B.2 to be received in payments for the following milestones upon concurrence from the Contracting Officer that each milestone has been accomplished:

Milestone 1: Staffing

The Contractor has hired all personnel proposed as *key* personnel and all of these personnel are performing phase-in work (at the levels proposed); and at least 90% of all personnel proposed to perform all contract requirements (e.g. full time, half time, etc.) have provided written acceptance of firm job offers.

EVIDENCE: Summary report shall be provided with the invoice. Summary report shall consist of acceptance letters for the key personnel and summary of offers made and accepted by labor category for all other personnel proposed to perform all contract requirements.

Milestone 2: ISS Applications Competency

The Contractor has operational competency with the following ISS Applications or equivalent.

Reference: Section C, Addendum 4	Reference: Section C, Addendum 2
1. SAPHIRE	9. ExCATT
2. CSD	10. BASEPLATE
3. EDMS	11. TRAM
4. COSMOS	12. STRAP
5. PRACA	13. TPS
6. IRMA	14. IEBT
7. ORUDD	15. CEBT
8. SANMIS	16. HITS
	17. MODGEN

EVIDENCE: Summary report shall be provided with the invoice. Summary report shall identify names of individuals competent with each corresponding application. A minimum of one individual shall be provided for each application. Competency is defined as training, certification, and/or equivalent experience on each system.

Milestone 3: Major Subcontracts

The Contractor has all major subcontracts in place and ready to perform contract requirements.

EVIDENCE: Copies of the signature page of all major subcontracts for the PI&C follow-on contract shall be submitted with the invoice.

Milestone 4: Plans and Other Data Deliverables

The Contractor has completed and submitted all of the following plans and other Data Deliverables for NASA review and/or approval (per Data Requirements Description [DRD]):

1. PIC-CM-01, Configuration Management Plan
2. PIC-IT-03, Information Technology (IT) Security Plan
3. PIC-PM-01, PI&C Management Plan
4. PIC-PM-03, Certification of Flight Readiness (CoFR) Plan
5. PIC-PR-03, Wage/Salary and Fringe Benefit
6. PIC-SA-01, Mission Assurance and Risk Management Plan

EVIDENCE: Government acceptance of above DRDs.

Milestone 5: Financial Report

\$0

The Contractor has implemented financial reporting system fully capable of accurately reporting in accordance with DRD PIC-PC-01 and submitting proper invoices for payment of completed work.

EVIDENCE: Government acceptance of DRD PIC-PC-01 deliverable.

Milestone 6: Definitization of Contract Year 1 (FY 2010)
Task Orders

The Contractor has provided all task order plans in accordance with DRD PIC-PR-05, and complied with clause NFS1852.216-80, Task Order Procedures.

EVIDENCE: Government acceptance of DRD PIC-PR-05 and contract year 1 (FY 2010) task orders.

(End of clause)

G.13 PAYMENTS - FIXED RATE IDIQ

“1. Billing Office:

The designated billing office for invoices for purposes of the Prompt Payment clause of this contract is indicated below. Invoices for payment shall include a reference to the number of this contract.

If the contractor is authorized to submit invoices directly to the NASA paying office, the original invoice should be submitted to:

NASA Shared Services Center (NSSC)
Financial Management Division (FMD) – Accounts Payable
Bldg 111, C. Road
Stennis Space Center, MS 39529
Email: NSSC-AccountsPayable@nasa.gov (**ENCRYPTED ONLY**)
Fax: 866-209-5415

For any period that the Defense Contract Audit Agency has authorized the Contractor to submit invoices directly to the Government paying office, invoices are not required to be sent to the Auditor, and are considered to be provisionally approved for payment, subject to final audit.

If the contractor is not authorized to submit invoices directly to the paying office as described above, the contractor shall prepare and submit invoices as follows:

One original Standard Form (SF) 1034, SF 1035, or equivalent Contractor's attachment to:

DCAA Peninsula Branch Office
480 San Antonio Road Suite 150
Mountain View, CA 94040-1218

Two copies of SF1034, SF1035A, or equivalent Contractor's attachment to the following offices by insertion in the memorandum block of their names and addresses:

- Copy 1 NASA Contracting Officer
- Copy 2 Auditor
- Contracting Officer may designate other recipients as required.

2. Invoicing

The contractor shall prepare and submit invoices to the Contracting Office specified in the contract. A proper invoice must include the items listed in paragraphs (a)(3)(i) through (a)(3)(x) of 52.232-25, Prompt Payment.

Invoices may be submitted twice each month (or at more frequent intervals, if approved by the Contracting Officer), to the Contracting Officer.

The Contractor shall substantiate invoices (including any subcontractor hours reimbursed at the hourly rate in the schedule) by evidence of actual payment and/or by –

- Individual daily job timekeeping records;
- Records that verify the employees meet the qualifications for the labor categories specified in the contract; or
- Other substantiation approved by the Contracting Officer.

Promptly after receipt of each substantiated invoice, the Government shall, except as otherwise provided in this contract, pay the invoice as approved by the Contracting Officer. Unless the schedule prescribes otherwise, the hourly rates in the schedule shall not be varied by virtue of the Contractor having performed work on an overtime basis. Overtime rates are provided in the schedule in Clause B.4, Indefinite Delivery/Indefinite Quantity (IDIQ) Orders. Overtime work shall be approved in advance by the Contracting Officer. The premium portion of the overtime rates shall be reimbursable only to the extent the overtime is approved by the Contracting Officer.

The Contractor shall provide evidence to the Government that required Payroll taxes have been paid, semi-annually (beginning 6-months after contract award), to the Contracting Officer, or upon the request of the Contracting Officer.2. As prescribed in 52.232-1 - Payments, the Government will pay the Contractor upon the submission of invoice approved by the Contracting Officer as follows:

a. Direct Labor

Direct labor is defined as the direct hours delivered which meet the labor categories specified in the contract that are:

- Performed by the Contractor;
- Performed by the subcontractors;
- Transferred between divisions, subsidiary, or affiliates of the Contractor under a common control.

Direct labor shall be paid for all direct labor performed on the contract that meets the labor qualifications specified in the contract. ~~Authorized in each IDIQ task order.~~

Labor hours incurred for which labor qualifications were specified in the contract will not be paid to the extent the work is performed by employees that do not meet the qualifications specified in the contract unless specifically authorized by the Contracting Officer.

Fixed hourly rates identified in clause B.4 Indefinite- Delivery-Indefinite-Quantity Orders include wages, indirect costs, general and administrative expense, and profit. Fixed hourly rates shall be invoiced in accordance with rates identified in B.4, and Indefinite Delivery/Indefinite Quantity (IDIQ) Orders. The amounts shall be computed by multiplying the appropriate fixed hourly rate by the number of direct labor hours performed. Fractional parts of an hour shall be payable on a prorated basis.

b. Travel and Materials (Allowable and Allocable)

Materials are defined as:

Direct materials, including supplies transferred between divisions, subsidiaries, or affiliates of the Contractor under a common control;

- Subcontracts for supplies and incidental services for which there is not a labor category specified in the contract;
- Other direct costs (e.g., incidental services for which there is not a labor category specified in the contract, travel, computer usage charges, etc.); and
- Applicable indirect costs.

The Government will reimburse the Contractor for allowable cost of materials provided the Contractor:

- Has made payments for materials in accordance with the terms and conditions of the agreement or invoice; or
- Ordinarily makes these payments within 30 days of the submission of the Contractor's payment request to the Government and such payment is in accordance with the terms and conditions of the agreement or invoice.

Payment for materials is subject to clause 52.216-7 Allowable Cost and Payment of the contract. The Contracting Officer will determine allowable costs of materials in accordance with Subpart 31.2 of the Federal Acquisition Regulation (FAR) in effect on the date of this contract.

The Contractor may include allocable indirect costs and other direct costs to the extent they are-

- Comprised only of costs that are clearly excluded from the hourly rate;
- Allocated in accordance with the Contractor's written or established accounting practices; and
- Indirect costs are not applied to subcontracts that are paid at the hourly rates.

The Government will reimburse the Contractor for allowable cost of materials and travel provided that the Contractor:

- Obtained materials at the most advantageous prices with due regard to securing prompt delivery of satisfactory service;
- Takes all cash and trade discounts, rebates, allowances, credits, salvage, commissions, and other benefits;
- Excludes profit to the Prime Contractor
- Cost incurred does not exceed the authorized NTE amount authorized in each IDIQ task order.
- Includes a summary of travel and material expenditures during the invoice period and cumulative to date by task order number. Detailed records shall be maintained by the Contractor.

3. Audit

At any time before final payment under this contract, the Contracting Officer may request audit of the invoices and supporting documentation. Each payment previously made shall be subject to reduction to the extent of amounts, on preceding invoices, that are found by the Contracting Officer or authorized representative not to have been properly payable and shall also be subject to reduction for overpayments or to increase for underpayments. Upon receipt and approval of the invoice designated by the Contractor as the "completion invoice" and supporting documentation, and upon compliance by the Contractor with all terms of this contract (including, without limitation, terms relating to patents and the terms of paragraph (g) of this clause), the Government shall promptly pay any balance due the Contractor. The completion invoice, and supporting documentation, shall be submitted by the Contractor as promptly as practicable following completion of the work under this contract, but in no event later than 1 year (or such longer period as the Contracting Officer may approve in writing) from the date of completion.

(End of Clause)"

G.14 TRAVEL

Domestic and International travel may be required in performance of this contract. Specific travel requirements will be identified and funded in each IDIQ task order as such need arises.

The Contractor has no authority to incur travel costs without explicit written approval of the Contracting Officer. The Government shall include the applicable NTE travel amount in each IDIQ task order. Under no circumstance shall the travel cost be paid by the Government other than that authorized in writing by the Contracting Officer.

Prior to departure for Domestic and/or International travel, the Contractor shall obtain written (electronic approval acceptable) approval from the Contracting Officer Technical Representative (COTR) and ensure that written authorization from the Contracting Officer has been obtained. Travel identified in approved task orders will be deemed to have written authorization prior to departure.

All travel costs shall be supported with details such as arrival and departures, locations, number of trips, number of people per trip, duration of trip, and any other miscellaneous travel costs. The Contractor shall attempt to utilize the General Services Administration (GSA) travel rates found at www.gsa.gov whenever possible.

(End of clause)

G.15 RUSSIAN TRAVEL

The Contractor shall comply with Management Directive, ISSP-MD-114, Guidelines for Travel Support of ISS Program Meetings.

(End of clause)

G.16 ADMINISTRATIVE PROVISIONS RELATING TO INSTALLATION-ACCOUNTABLE GOVERNMENT PROPERTY AND SERVICES

- (a) Requests for specific support to be furnished by the Government pursuant to the "Installation-Provided Government Property" clause and the "List of Installation-Accountable Government Property and Services" clause shall be made by the Contractor to the Contracting Officer in accordance with the current issue of JPG 5151, Support Contractor Handbook. The completion of forms, needed to obtain support, shall be accomplished by the Contractor.
- (b) If the Contractor requests property or services which are not available or cannot be made available from the Government to meet the Contractor's schedule needs, the requesting document will be canceled and returned to the Contractor. The Contractor will thereafter be responsible for acquiring the needed items or services.
- (c) If the Contractor initiates a transfer of accountability (DD Form 1149) from the Contractor to the Government, the Contractor shall continue to account for the property in question until Contractor receives notification that the form has been signed by the JSC SEMO or his/her authorized representative.

(End of clause)

G.17 INFORMATION INCIDENTAL TO CONTRACT ADMINISTRATION

- (a) With the exception of financial information, the Government shall have unlimited rights to use and distribute to third parties any administrative or management information developed by the Contractor or a subcontractor at any tier in whole or in part for the performance of the contract or first produced in the performance of the contract, whether or not said information is specified as a contract deliverable, if created in whole or in part at Government expense. The Contracting Officer may, at any time during the contract performance or within a period of 3 years after acceptance of all items to be delivered under this contract, order any administrative or management information developed by the Contractor or a subcontractor at any tier in whole or in part for the performance of the contract or first produced in the performance of the contract.
- (b) The Contracting Officer may release the Contractor from the requirements of this clause for specifically identified information at any time during the 3-year period set forth in paragraph (a) of this clause.

(End of clause)

G.18 1852.245-70 CONTRACTOR REQUESTS FOR GOVERNMENT-OWNED EQUIPMENT. (JULY 1997)

- (a) "Equipment," as used in this clause, means commercially available items capable of stand-alone use, including those to be acquired for incorporation into special test equipment or special tooling.
- (b) (1) Upon determination of need for any Government-owned equipment item for performance of this contract, the contractor shall provide to the contracting officer a written request justifying the need for the equipment and the reasons why contractor-owned property cannot be used, citing the applicable FAR or contract authority for use of Government-owned equipment. Equipment being acquired as a deliverable end item listed in the contract or as a component for incorporation into a deliverable end item listed in the contract is exempt from this requirement.
(2) The contractor's request shall include a description of the item in sufficient detail to enable the Government to screen its inventories for available equipment or to purchase equipment. For this purpose, the contractor shall (i) prepare a separate DD Form 1419, DOD Industrial Plant Equipment Requisition, or equivalent format, for each item requested and (ii) forward it through the contracting officer to the Industrial Property Officer at the cognizant NASA installation at least 30 days in advance of the date the contractor intends to acquire the item. Multiple units of identical items may be requested on a single form. Instructions for preparing the DD Form 1419 are contained in NASA

FAR Supplement 1845.7102. If a certificate of nonavailability is not received within that period, the contractor may proceed to acquire the item, subject to having obtained contracting officer consent, if required, and having complied with any other applicable provisions of this contract.

- (c) Contractors who are authorized to conduct their own screening using the NASA Equipment Management System (NEMS) and other Government sources of excess property shall provide the evidence of screening results with their request for contracting officer consent. Requests to purchase based on unsuitability of items found shall include rationale for the determined unsuitability.

(End of clause)

[END OF SECTION]

SECTION H - SPECIAL CONTRACT REQUIREMENTS**H.1 LISTING OF CLAUSES INCORPORATED BY REFERENCE**

NOTICE: The following solicitation provisions and/or contract clauses pertinent to this section are hereby incorporated by reference:

I. FEDERAL ACQUISITION REGULATION (48 CFR CHAPTER 1)

CLAUSE NUMBER	DATE	TITLE
None included by reference		

II. NASA FAR SUPPLEMENT (48 CFR CHAPTER 18) CLAUSES

CLAUSE NUMBER	DATE	TITLE
1852.208-81	NOV 2004	RESTRICTIONS ON PRINTING AND DUPLICATING
1852.223-75	FEB 2002	MAJOR BREACH OF SAFETY OR SECURITY
1852.225-70	FEB 2000	EXPORT LICENSES AND ALTERNATE 1 (FEB 2000) AND PARA (B) [INSERT: "JOHNSON SPACE CENTER"]
1852.228-76	DEC 1994	CROSS-WAIVER OF LIABILITY FOR SPACE STATION ACTIVITIES
1852.246-70	MAR 1997	MISSION CRITICAL SPACE SYSTEMS PERSONNEL RELIABILITY PROGRAM

H.2 NFS 1852.209-71 LIMITATION OF FUTURE CONTRACTING (DEC 1988)

- (a) The Contracting Officer has determined that this acquisition may give rise to a potential organizational conflict of interest. Accordingly, the attention of prospective offerors is invited to FAR Subpart 9.5--Organizational Conflicts of Interest.
- (b) The nature of this conflict is:
- 9.505-3 Providing evaluation services
 - 9.505-4 Obtaining access to proprietary information
 - Reference Clause H.8, ISS Contract Strategy Conflict of Interest Agreement.

© The restrictions upon future contracting are as follows:

- (1) If the Contractor, under the terms of this contract, or through the performance of tasks pursuant to this contract, is required to develop specifications or statements of work that are to be incorporated into a solicitation, the Contractor shall be ineligible to perform the work described in that solicitation as a prime or first-tier subcontractor under an ensuing NASA contract. This restriction shall remain in effect for a reasonable time, as agreed to by the Contracting Officer and the Contractor, sufficient to avoid unfair competitive advantage or potential bias (this time shall in no case be less than the duration of the initial production contract). NASA shall not unilaterally require the Contractor to prepare such specifications or statements of work under this contract.
- (2) To the extent that the work under this contract requires access to proprietary, business confidential, or financial data of other companies, and as long as these data remain proprietary or confidential, the Contractor shall protect these data from unauthorized use and disclosure and agrees not to use them to compete with those other companies.

(End of clause)

H.3 NFS 1852.216-80 TASK ORDERING PROCEDURE (OCT 1996)

- (a) Only the Contracting Officer may issue task orders to the Contractor, providing specific authorization or direction to perform work within the scope of the contract and as specified in the schedule. The Contractor may incur costs under this contract in performance of task orders and task order modifications issued in accordance with this clause. No other costs are authorized unless otherwise specified in the contract or expressly authorized by the Contracting Officer.
- (b) Prior to issuing a task order, the Contracting Officer shall provide the Contractor with the following data:
 - (1) A functional description of the work identifying the objectives or results desired from the contemplated task order.
 - (2) Proposed performance standards to be used as criteria for determining whether the work requirements have been met.
 - (3) A request for a task plan from the Contractor to include the technical approach, period of performance, appropriate cost information, and any other information required to determine the reasonableness of the Contractor's proposal.

- © Within 10 calendar days after receipt of the Contracting Officer's request, the Contractor shall submit a task plan conforming to the request.
- (d) After review and any necessary discussions, the Contracting Officer may issue a task order to the Contractor containing, as a minimum, the following:
- (1) Date of the order.
 - (2) Contract number and order number.
 - (3) Functional description of the work identifying the objectives or results desired from the task order, including special instructions or other information necessary for performance of the task.
 - (4) Performance standards, and where appropriate, quality assurance standards.
 - (5) Maximum dollar amount authorized (cost and fee or price). This includes allocation of award fee among award fee periods, if applicable.
 - (6) Any other resources (travel, materials, equipment, facilities, etc.) authorized.
 - (7) Delivery/performance schedule including start and end dates.
 - (8) If contract funding is by individual task order, accounting and appropriation data.
- (e) The Contractor shall provide acknowledgment of receipt to the Contracting Officer within 3 calendar days after receipt of the task order.
- (f) If time constraints do not permit issuance of a fully defined task order in accordance with the procedures described in paragraphs (a) through (d), a task order which includes a ceiling price may be issued.
- (g) The Contracting Officer may amend tasks in the same manner in which they were issued.
- (h) In the event of a conflict between the requirements of the task order and the Contractor's approved task plan, the task order shall prevail.
- (i) Contractor shall submit monthly task order progress reports. As a minimum, the reports shall contain the following information:
- (1) Contract number, task order number, and date of the order.
 - (2) Task ceiling price.

- (3) Cost and hours incurred to date for each issued task.
- (4) Costs and hours estimated to complete each issued task.
- (5) Significant issues/problems associated with a task.
- (6) Cost summary of the status of all tasks issued under the contract.

(End of clause)

H.4 NFS 1852.223-70 SAFETY AND HEALTH (APR 2002)

- (a) Safety is the freedom from those conditions that can cause death, injury, occupational illness, damage to or loss of equipment or property, or damage to the environment. NASA's safety priority is to protect: (1) the public, (2) astronauts and pilots, (3) the NASA workforce (including Contractor employees working on NASA contracts), and (4) high-value equipment and property.
- (b) The Contractor shall take all reasonable safety and occupational health measures in performing this contract. The Contractor shall comply with all Federal, State, and local laws applicable to safety and occupational health and with the safety and occupational health standards, specifications, reporting requirements, and any other relevant requirements of this contract.
- © The Contractor shall take, or cause to be taken, any other safety, and occupational health measures the Contracting Officer may reasonably direct. To the extent that the Contractor may be entitled to an equitable adjustment for those measures under the terms and conditions of this contract, the equitable adjustment shall be determined pursuant to the procedures of the changes clause of this contract; provided, that no adjustment shall be made under this Safety and Health clause for any change for which an equitable adjustment is expressly provided under any other clause of the contract.
- (d) The Contractor shall immediately notify and promptly report to the Contracting Officer or a designee any accident, incident, or exposure resulting in fatality, lost-time occupational injury, occupational disease, contamination of property beyond any stated acceptable limits set forth in the contract schedule; or property loss of \$25,000 or more, or Close Call (a situation or occurrence with no injury, no damage or only minor damage [less than \$1,000] but possesses the potential to cause any type mishap, or any injury, damage, or negative mission impact) that may be of immediate interest to NASA, arising out of work performed under this contract. The Contractor is not required to include in any report an expression of opinion as to the fault or negligence of any employee. In addition, service Contractors (excluding construction contracts) shall provide quarterly reports specifying lost-time frequency rate, number of lost-time injuries, exposure, and accident/incident dollar losses as specified in the contract schedule.

- (e) The Contractor shall investigate all work-related incidents, accidents, and Close Calls, to the extent necessary to determine their causes and furnish the Contracting Officer a report, in such form as the Contracting Officer may require, of the investigative findings and proposed or completed corrective actions.
- (f)(1) The Contracting Officer may notify the Contractor in writing of any noncompliance with this clause and specify corrective actions to be taken. When the Contracting Officer becomes aware of noncompliance that may pose a serious or imminent danger to safety and health of the public, astronauts and pilots, the NASA workforce (including Contractor employees working on NASA contracts), or high value mission critical equipment or property, the Contracting Officer shall notify the Contractor orally, with written confirmation. The Contractor shall promptly take and report any necessary corrective action.
- (2) If the Contractor fails or refuses to institute prompt corrective action in accordance with subparagraph (f)(1) of this clause, the Contracting Officer may invoke the stop-work order clause in this contract or any other remedy available to the Government in the event of such failure or refusal.
- (g) The Contractor (or subcontractor or supplier) shall insert the substance of this clause, including this paragraph (g) and any applicable schedule provisions and clauses, with appropriate changes of designations of the parties, in all solicitations and subcontracts of every tier, when one or more of the following conditions exist:
- (1) The work will be conducted completely or partly on premises owned or controlled by the Government.
 - (2) The work includes construction, alteration, or repair of facilities in excess of the simplified acquisition threshold.
 - (3) The work, regardless of place of performance, involves hazards that could endanger the public, astronauts and pilots, the NASA workforce (including Contractor employees working on NASA contracts), or high value equipment or property, and the hazards are not adequately addressed by Occupational Safety and Health Administration (OSHA) or Department of Transportation (DOT) regulations (if applicable).
 - (4) When the Contractor (or subcontractor or supplier) determines that the assessed risk and consequences of a failure to properly manage and control the hazard(s) warrants use of the clause.
- (h) The Contractor (or subcontractor or supplier) may exclude the provisions of paragraph (g) from its solicitation(s) and subcontract(s) of every tier when it determines that the clause is not necessary because the application of the OSHA and DOT (if applicable) regulations

constitute adequate safety and occupational health protection. When a determination is made to exclude the provisions of paragraph (g) from a solicitation and subcontract, the Contractor must notify and provide the basis for the determination to the Contracting Officer. In subcontracts of every tier above the micro-purchase threshold for which paragraph (g) does not apply, the Contractor (or subcontractor or supplier) shall insert the substance of paragraphs (a), (b), (c), and (f) of this clause.

- (i) Authorized Government representatives of the Contracting Officer shall have access to and the right to examine the sites or areas where work under this contract is being performed in order to determine the adequacy of the Contractor's safety and occupational health measures under this clause.
- (j) The Contractor shall continually update the safety and health plan when necessary. In particular, the Contractor shall furnish a list of all hazardous operations to be performed, and a list of other major or key operations required or planned in the performance of the contract, even though not deemed hazardous by the Contractor. NASA and the Contractor shall jointly decide which operations are to be considered hazardous, with NASA as the final authority. Before hazardous operations commence, the Contractor shall submit for NASA concurrence --
 - (1) Written hazardous operating procedures for all hazardous operations; and/or
 - (2) Qualification standards for personnel involved in hazardous operations.

(End of clause)

H.5 NFS 1852.232-77 LIMITATION OF FUNDS (FIXED-PRICE CONTRACT) (MAR 1989)

- (a) Of the total contract price, the sum of **\$70,398,850.25** is presently available for payment and allotted to this contract. It is anticipated that from time to time additional funds will be allocated to the contract, until the total price of said contract is allotted.
- (b) The contractor agrees to perform or have performed work under this contract up to the point at which, if this contract is terminated pursuant to the Termination for Convenience of the Government clause of this contract, the total amount payable by the Government (including amounts payable for subcontracts and settlement costs) pursuant to paragraphs (f) and (g) of that clause would, in the exercise of reasonable judgment by the contractor, approximate the total amount of the time allotted to the contract. The contractor is not obligated to continue performance of the work beyond that point. The Government is not obligated in any event to pay or reimburse the contractor for more than the amount from time to time allotted to the contract, anything to the contrary in the Termination for Convenience of the Government clause notwithstanding.

- (c) (1) It is contemplated that funds presently allotted to this contract will cover the work to be performed until **February 23, 2012**.
- (2) If funds allotted are considered by the contractor to be inadequate to cover the work to be performed until that date, or an agreed date substituted for it, the contractor shall notify the Contracting Officer in writing when within the next 60 days the work will reach a point at which, if the contract is terminated pursuant to the Termination for Convenience of the Government clause of this contract, the total amount payable by the Government (including amounts payable for subcontracts and settlement costs) pursuant to paragraphs (f) and (g) of that clause will approximate 75 percent of the total amount then allotted to the contract.
- (3) (i) The notice shall state the estimate when the point referred to in paragraph (c)(2) of this clause will be reached and the estimated amount of additional funds required to continue performance to the date specified in paragraph (c)(1) of this clause, or an agreed date substituted for it.
- (ii) The contractor shall, 60 days in advance of the date specified in paragraph (c)(1) of this clause, or an agreed date substituted for it, advise the Contracting Officer in writing as to the estimated amount of additional funds required for the timely performance of the contract for a further period as may be specified in the contract or otherwise agreed to by the parties.
- (4) If, after the notification referred to in paragraph (c)(3)(ii) of this clause, additional funds are not allotted by the date specified in paragraph (c)(1) of this clause, or an agreed date substituted for it, the Contracting Officer shall, upon the contractor's written request, terminate this contract on that date or on the date set forth in the request, whichever is later, pursuant to the Termination for Convenience of the Government clause.
- (d) When additional funds are allotted from time to time for continued performance of the work under this contract, the parties shall agree on the applicable period of contract performance to be covered by these funds. The provisions of paragraphs (b) and (c) of this clause shall apply to these additional allotted funds and the substituted date pertaining to them, and the contract shall be modified accordingly.
- (e) If, solely by reason of the Government's failure to allot additional funds in amounts sufficient for the timely performance of this contract, the contractor incurs additional costs or is delayed in the performance of the work under this contract, and if additional funds are allotted, an equitable adjustment shall be made in the price or prices (including appropriate target, billing, and ceiling prices where applicable) of the items to be delivered, or in the time of delivery, or both.
- (f) The Government may at any time before termination, and, with the consent of the contractor, after notice of termination, allot additional funds for this contract.

- (g) The provisions of this clause with respect to termination shall in no way be deemed to limit the rights of the Government under the default clause of this contract. The provisions of this Limitation of Funds clause are limited to the work on and allotment of funds for the items set forth in paragraph (a) of this clause. This clause shall become inoperative upon the allotment of funds for the total price of said work except for rights and obligations then existing under this clause.
- (h) Nothing in this clause shall affect the right of the Government to terminate this contract pursuant to the Termination for Convenience of the Government clause of this contract.

(End of clause)

H.6 NFS 1852.235-71 KEY PERSONNEL AND FACILITIES (MAR 1989)

- (a) The personnel and/or facilities listed below (or specified in the contract schedule) are considered essential to the work being performed under this contract. Before removing, replacing, or diverting any of the listed or specified personnel or facilities, the Contractor shall (1) notify the Contracting Officer reasonably in advance, and (2) submit justification (including proposed substitutions) in sufficient detail to permit evaluation of the impact on this contract.
- (b) The Contractor shall make no diversion without the Contracting Officer's written consent; provided that the Contracting Officer may ratify in writing the proposed change, and that ratification shall constitute the Contracting Officer's consent required by this clause.
- (c) The list of personnel and/or facilities (shown below or as specified in the contract schedule) may, with the consent of the contracting parties, be amended from time to time during the course of the contract to add or delete personnel and/or facilities.

List here the personnel and/or facilities considered essential:

FACILITIES:

ARES Corporation
16441 Space Center Boulevard, Building A
Houston, Texas 77058

KEY PERSONNEL:

(End of clause)

H.7 REPRESENTATIONS, CERTIFICATIONS AND OTHER STATEMENTS OF OFFEROR

The completed provision 52.204-8, Annual Representations and Certifications, including any amended representation(s) made at paragraph (b) of the provision; and other representations, certifications and other statements contained in Section K completed and submitted as part of the offer dated [February 13, 2009] are hereby incorporated by reference in this resulting contract.

(End of clause)

H.8 ANNUAL PERFORMANCE FEEDBACK

(a) As part of the Government's surveillance activities, a periodic performance feedback will be conducted under this contract. This information will be provided to the Contractor for corrective actions and performance improvement. In addition, performance feedback may be used by the Government to provide a basis for decisions leading to the exercising of options for continued performance.

(b) The Government will provide the Contractor with the performance feedback annually at the end of each contract fiscal year, in accordance with NFS 1842.15 (NASA Form 1680) and DRD-PIC-PM-02 Program Management Review (PMR).

(c) In the Price performance area, the efficient use of skill mix utilized and hours expended in performance of task orders will be rated more favorably.

(End of clause)

H.9 ISS CONTRACT STRATEGY CONFLICT OF INTEREST AGREEMENT

(a) An organizational conflict of interest exists for this contract as it relates to the contracts awarded as part of the overall ISS Contract Strategy in that the Contractor may be in a position to favor its own products or capabilities. Two of the contracts to be awarded will be responsible for support to ISS Program Management. These two contracts are the

Program Integration and Control Contract and the Mission Integration Contract. The other contracts to be awarded will be responsible for the overall implementation of these Program requirements. The intent of this clause is to prohibit a Contractor from developing Program requirements in one of the aforementioned two contracts designed for “Support to ISS Program Management” and also implementing those requirements in one of the additional contracts responsible for “ISS Program Implementation.” Therefore, the Contractor, by signing this contract, fully understands, agrees, and will comply with the following conditions:

- (1) The Contractor will not perform work as a prime for the ISS follow-on contract responsible for ISS Program implementation.
 - (2) The Contractor will perform no more than 49% (total contract costs) of the work as a subContractor under any of the implementing contracts.
 - (3) The Contractor shall not, and will not, make the day-to-day Program Management decisions under any of the implementing contracts set forth in (a)(1).
- (b) If by the performance of this contract, or by any other means, the Contractor believes they may violate any of these conditions above, the Contractor shall notify the Contracting Officer in writing immediately.

(End of clause)

H.10 ASSOCIATE CONTRACTOR AGREEMENT FOR ISS

- (a) The success of the ISS Program is dependent on the efforts of multiple Contractors. The PI&C Contractor is a key participant. The other contracts of the key participating Contractors are:
- Mission Integration Contract
 - Cargo Mission Contract
 - United States On-Orbit Segment (USOS) Completion and Sustaining Engineering Contract
 - Space Program Operations Contract (SPOC)
 - Checkout, Assembly, and Payload Processing Services (CAPPS)
 - Integrated Mission Operations Contract (IMOC)

Under the aforementioned contracts the Contractors will provide the necessary technical, engineering and processing products and services required to develop, operate, maintain and utilize the ISS.

- (b) In order to achieve efficient and effective implementation of the operation and utilization phase of the ISS, the Contractor shall establish the means for coordination and exchange of information with associate Contractors. The information to be exchanged shall be that required by the Contractors in the execution of their respective contract requirements. The Contractors are strongly encouraged to seek out and foster cooperative efforts that will benefit the ISS Program with increased safety, efficiency, and productivity.
- (c) Given the unique role of this contract, and interrelations with the development, operation, maintenance and utilization of the ISS, the Contractor will engage in cooperative relationships that facilitate effective management of the overall ISS effort. This joint cooperation will be evaluated as part of the contract performance feedback process, as defined in the Annual Performance Feedback process for the PI&C contract.
- (d) To ensure successful implementation and utilization of the ISS, the Contractors shall establish formal guidelines to address coordination, cooperation and communication. All Program elements shall work in a coordinated fashion. Each Contractor shall establish the means for the exchange of such data as needed to keep other project elements fully informed.

(End of clause)

H.11 ADDITIONAL EXPORT CONTROL REQUIREMENTS

In addition to the requirements set forth in NFS 1852.225-70, Export Licenses, the Contractor shall perform the following tasks when they facilitate exports of NASA hardware, software or technical data according to the Export Administration Regulations, International Traffic in Arms Regulations or any other U.S. export control regulations (e.g. Nuclear Regulatory Commission, Drug Enforcement Agency etc.) pursuant to this contract:

- (a) Provide to the Johnson Space Center (JSC) Export Services Team (EST), in writing, an Advanced Notification of Export (ANE) for all Program related exports (hardware, software and technical data) where NASA is considered the U.S. Principal Party in Interest (USPPI). The requirements below shall be met by the Contractor and its subcontractors, respectively, when accomplishing the following activities:
 - (1) Submitting requests for NASA to apply for an export license with the Department of Commerce or Department of State for use under the contract activity in support of the ISS Program.

- (2) Submitting notice of the Contractor's intent to use Department of Commerce or Department of State export licenses obtained by NASA as they apply to the contract activity in support of the ISS Program.
- (3) Submitting notice of the Contractor's intent to use any export license exceptions or exemptions as they apply to the contract activity in support of the ISS Program.
- (b) For all Program related exports (hardware, software or technical data), submit the equivalent information described below to the Center Export Administrator (CEA) at the geographically closest NASA Space Flight Center (JSC, Marshall Space Flight Center [MSFC] or Kennedy Space Center [KSC]) according to the policies and procedures of that center (check with the cognizant Contracting Officer or CEA). A courtesy copy of equivalent information submitted to MSFC or KSC shall be provided to the JSC CEA's office. Provide copies of shipping documents for shipments made under a NASA Export License, exemption or exception to the appropriate CEA within two weeks after the shipment.
- (1) The Contractor shall submit requests for NASA to apply for a license at least 7 months prior to the need date to export. Note that the agencies which approve the licenses can take up to 6 months or more to process them.
- (2) The Contractor shall submit an ANE in a formal letter, fax or e-mail (e-mail is preferred), containing the information described below (as applicable), addressed to the CEA's Office in accordance with the submission schedule below. The schedule provides a minimum amount of time required to process the information, however license requests may take longer than 6 months to process by the controlling agency

Required Information	License Application	Use of License	Use Exemption/Exception
Submission Schedule	7 months prior to need date	At least 30 days prior to planned export date	At least 30 days prior to planned export date
Description of Commodity (as it appears on the license)	X	X	X
Specific End Use	X		X
1) NASA license number (include date of expiration), International Traffic in Arms Regulation (ITAR) license exemption (e.g. 125.4(b)(3)) or Export Administration Regulation (EAR) exception		X	X

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Required Information	License Application	Use of License	Use Exemption/Exception
(e.g. GOV, RPL, TMP, ENC, etc.). *			
2) Quantity and description as it appears on the applicable license.	X	X	X
3) Date of planned export	X	X	X
4) Origin of export (Company and city).	X	X	X
5) Intermediate and Ultimate Consignees, End User (full name and address), and Destination of export (Country, city and company).	X		
6) Point of contact with current phone number and e-mail address (for technical questions – must be a representative of the contractor originating the export).	X	X	X
7) Contractor Point of contact, current e-mail address and phone number for CEA's use to send response	X	X	X
8) Export Classification Control Number (ECCN) under the Export Administration Regulations or category under the United States Munitions List regulations	X		X
9) The technical rationale used to support the classification	X		X
10) Requirement to export (i.e., MOU, contract number, meeting minutes). Upon request by the CEA or CO, the contractor shall provide a	X		X

Required Information	License Application	Use of License	Use Exemption/Exception
copy of the requirement within 3 working days			
11) Additional information as necessary to clarify the export	X	X	X
12) A copy of the completed Pro Forma Invoice (JSC Form 1735) or equivalent form/ document attached to an email if prepared for the export	X	X	X
13) A copy of the completed electronically signed JSC Form 1724 (Export Control Request and Approval Worksheet) or equivalent form	X Signed by Civil Servant - Export Rep	X Copy of Signed form	X Signed by Civil Servant - Export Rep
NASA Point of Contact	X		X
Specific End Use	X	X	X

* Additional information is required for these exceptions.

- i. If using RPL, provide the license number, or copy of records confirming export authorization for the item being replaced.
- ii. If using ENC, provide reference to the manufacturer's record verifying eligibility for ENC (e.g. full internet address (URL), e-mail from manufacturer or copy of Commerce Department communication to manufacturer.
- iii. If using TMP, provide the expected return date.) **

(3) After all the information is submitted, the cognizant CEA's Office will respond to the Contractor or its subcontractor with a status within ten (10) working days. It is the CEA's goal to provide a notice of approval or other disposition within 10 working days for "Use of License" and "Use of Exemption/Exception" to the Contractor or its subcontractors who are exporting on behalf of NASA. Once approved, NASA will provide the destination control statement to use on all export documentation via e-mail or hardcopy letter.

- (c) In addition to other applicable export exemptions, the Contractor or its subcontractors are authorized to export hardware, software or data to ISS International Partner (IP) governmental offices that meet the conditions of license exception GOV (15 CFR 740.11(b)(2)(iii)(A)).

- (d) ** For temporary exports (TMP), the Contractor or its subcontractors shipping on behalf of NASA shall submit written notice to the CEA and Contracting Officer within five (5) business days of the date that the item was actually returned, along with the incoming documentation.
- (e) The Contractor or its subcontractors shall keep those records required by Department of Commerce and Department of State regulations for all exports and make them available upon request to NASA and its representatives.
- (f) These requirements do not apply to Contractor or subcontractor commercial contract related exports or exports pursuant to Technical Assistance Agreements or other license authorizations received by the Contractor or its subcontractors and for which the Contractor or its subcontractors will be the USPPPI and/or "Exporter of Record."
- (g) These requirements do not apply to exports for which there is "No License Required" (e.g. EAR99, 9A004 to Canadian International Partners on ISS, etc.)
- (h) The Contractor and its subcontractors shall report to the NASA JSC EST, in writing, any potential export issues (including those related to support of sustaining engineering and operations of ISS) that cannot be resolved by the Contractor or its subcontractors, respectively. Such report and/or notification of issues and technical tasks should be reported to the NASA JSC EST at least three (3) months in advance of requested action.
- (i) Upon discovery of unforeseen adverse export issues, the Contractor shall immediately notify NASA JSC EST by telephone with a follow up e-mail or hardcopy letter of said issue and shall report to the NASA JSC EST, in writing, as the facts become known.
- (j) This clause applies when the Contractor or its subcontractors elect to export NASA owned Government Furnished Equipment and Property (GFE, GFP) (including data, software or hardware). In such instances, the Contractor or its subcontractors are the USPPPI. They shall provide verifiable evidence that a valid export license, exemption or exception has been processed and approved (as applicable). They shall also provide this information for additional property that is not GFE or GFP that the Contractor or its subcontractors elect to include with the GFE and GFP.

(End of clause)

H.12 GOVERNMENT INSIGHT

- (a) Definitions. For the purpose of this contract, the following definitions apply:

"Insight," as used in this clause, means technical visibility into the Program, maintained through audit, surveillance, assessment of trends and metrics, software independent

verification and validation, the flight readiness review process, and review or independent assessment of out-of-family anomalies occurring in any phase of the Program.

“Surveillance,” as used in this clause means continual monitoring and verification of the status of manufacturing, testing, and processing of Station hardware, software and operations preparations to ensure that requirements are being fulfilled. Items to be monitored and verified are selected—this is not an all inclusive activity.

“Audit,” as used in this clause, means the implementation of procedures and requirements of the NASA Engineering Quality Audit (NEQA) or other equivalent audit techniques used to perform periodic audit of all aspects of processes and procedures required to manufacture, assemble, test, and process hardware for flight. Audits may include an examination of all disciplines and tasks which are involved with or support ISS, hardware and software production and maintenance, safety and quality assurance, logistics, procurements and operations. These descriptions are illustrative only and shall not be construed as any limitation on the Government’s right to conduct an audit of the Contractor and subcontractors to determine performance on this contract.

- (b) The Government shall have the right to audit the Contractor and subcontractors in accordance with applicable clauses within this contract. One purpose of these audits is to afford the Government insight into and understanding of Contractor and selected subcontractor processes and procedures to determine whether the processes or procedures (1) adversely affect safety; (2) are not within contract performance standards; or (3) adversely affect future launch schedules.
- (c) The Government may schedule fact-finding meetings with the Contractor and subcontractors as necessary to discuss issues requiring Government insight. Scheduling and format of these meetings shall indicate whether exchange of information will be required, and the number and expertise of Contractor/subcontractor personnel who shall attend the meetings. When requested by the Contracting Officer or designee, the Contractor and subcontractors shall provide necessary support to the Government when it audits the Contractor or subcontractor and for the Government-Contractor/subcontractor meetings. The purpose of these meetings is to understand the findings of the Government audits. The parties understand and agree that no direction from the Government or constructive change to the contract shall result from any of these meetings.

(End of clause)

H.13 REPROCUREMENT DATA PACKAGE

The Contractor shall provide a Data Reprourement Package in accordance with DRD PIC-PR-04.

(End of clause)

H.14 GOVERNMENT-PROVIDED RUSSIAN LANGUAGE AND LOGISTICS SERVICES (RLLS)

The Contractor is authorized use of the following RLLS in performance of this contract or any subcontract entered into under this contract:

- Russian Translations
- Russian Interpretations
- Russian Language Training
- Russian Logistics services (both in the U.S. and in Russia), including (a) Ground Services (e.g. airport pickup/drop-off, transportation between hotels and meeting locations); (b) Meeting Services (e.g. coordination of schedules, agendas, and protocols); (c) Hotel Reservations; and (d) Visa Coordination.

The Contracting Officer shall be promptly notified by the Contractor upon identification of a need for RLLS. The Contracting Officer shall provide instructions as to the point of contact for submitting a request for RLLS. Failure of the Government to provide adequate or timely RLLS shall entitle the Contractor to an equitable adjustment in all affected contract terms and conditions, exclusive of any adjustment to fee. This provision, including this flow-down requirement, shall be inserted in all subcontracts where it is anticipated that RLLS may be necessary for contract performance.

(End of clause)

H.15 SUBCONTRACTING WITH RUSSIAN ENTITIES FOR GOODS OR SERVICES

(a) Definitions: In this provision:

(1) The term "Russian entities" means:

(A) Russian persons, or

(B) Entities created under Russian law or owned, in whole or in part, by Russian persons or companies including, but not limited to, the following:

(i) The Russian Federal Space Agency (Roscosmos),

(ii) Any organization or entity under the jurisdiction or control of Roscosmos, or

(iii) Any other organization, entity, or element of the Government of the Russian Federation.

- (2) The term "extraordinary payments" means payments in cash or in kind made or to be made by the United States Government prior to July 1, 2016, for work to be performed or services to be rendered prior to that date necessary to meet United States obligations under the Agreement Concerning Cooperation on the Civil International Space Station, with annex, signed at Washington January 29, 1998, and entered into force March 27, 2001, or any protocol, agreement, memorandum of understanding, or contract related thereto.
- (b) This clause implements the reporting requirement in section 6(i) of the Iran, North Korea, and Syria Nonproliferation Act. The provisions of this clause are without prejudice to the question of whether the Contractor or its subcontractor(s) are making extraordinary payments under section 6(a) or fall within the exceptions in section 7(1)(B) of the Act. NASA has applied the restrictions in the Act to include funding of Russian entities via U.S. Contractors.
- (c) (1) The Contractor shall not subcontract with Russian entities without first receiving written approval from the CO. In order to obtain this written approval to subcontract with any Russian entity as defined in paragraphs (a), the Contractor shall provide the CO with the following information related to each planned new subcontract and any change to an existing subcontract with entities that fit the description in paragraph (a):
- (A) A detailed description of the subcontracting entity, including its name, address, and a point of contact, as well as a detailed description of the proposed subcontract including the specific purpose of payments that will be made under the subcontract.
 - (B) The Contractor shall provide certification that the subcontracting entity is not, at the date of the subcontract approval request, on any of the lists of proscribed denied parties, specially designated nationals and entities of concern found at:
 - BIS's Listing of Entities of Concern (see <http://www.access.gpo.gov/bis/ear/pdf/744spir.pdf>)
 - BIS's List of Denied Parties (see <http://www.bis.doc.gov/dpl/Default.shtm>)
 - OFAC's List of Specially Designated Nationals (Adobe® PDF format) (see <http://www.treas.gov/offices/enforcement/ofac/sdn/t11sdn.pdf>)
 - List of Unverified Persons in Foreign Countries (see http://www.bis.doc.gov/Enforcement/UnverifiedList/unverified_parties.html)
 - State Department's List of Parties Statutorily Debarred for Arms Export Control Act Convictions (see <http://www.pmddtc.state.gov/debar059.htm>)
 - State Department's Lists of Proliferating Entities (see <http://www.state.gov/t/isn/c15231.htm>)

- (2) Unless relief is granted by the CO, the information necessary to obtain approval to subcontract shall be provided to the CO 30 business days prior to executing any planned subcontract with entities defined in paragraph (a).
- (d) After receiving approval to subcontract, the Contractor shall provide the CO with a report every six months that documents the individual payments made to an entity in paragraph (a). The reports are due on July 15th and January 15th. The July 15th report shall document all of the individual payments made from the previous January through June. The January 15th report shall document all of the individual payments made from the previous July through December. The content of the report shall provide the following information for each time a payment is made to an entity in paragraph (a):
- (1) The name of the entity
 - (2) The subcontract number
 - (3) The amount of the payment
 - (4) The date of the payment
- (e) The CO may direct the Contractor to provide additional information for any other prospective or existing subcontract at any tier. The CO may direct the Contractor to terminate for the convenience of the Government any subcontract at any tier with an entity described in paragraph (a), subject to an equitable adjustment.
- (f) Notwithstanding FAR 52.216-7, "Allowable Cost and Payments," on or after June 30, 2016 the Contractor shall be responsible to make payments to entities defined in paragraph (a) of this provision. Any subcontract with entities defined in paragraph (a), therefore, shall be completed in sufficient time to permit the U.S. Government to make extraordinary payments on subcontracts with Russian entities on or before June 30, 2016.
- (g) The Contractor shall include the substance of this clause in all its subcontracts, and shall require such inclusion in all other subcontracts of any tier. The Contractor shall be responsible to obtain written approval from the CO to enter into any tier subcontract that involves entities defined in paragraph (a).

(End of Clause)

H.16 TASK ORDER AMENDMENTS

Contracting Officer approval must be obtained by way of an approved task order amendment in cases where the Contractor will either (1) exceed the maximum authorized dollars or, (2) exceed total authorized hours or, (3) the task order does not contain a specified skill type, or

skill level needed to perform the task order. Additional criteria for task order amendments may be provided by the Contracting Officer in each individual task order.

(End of clause)

H.17 NFS 1852.242-72 OBSERVANCE OF LEGAL HOLIDAYS (AUG 1992) ALTERNATE I (SEPTEMBER 1989)

- (a) The on-site Government personnel observe the following holidays:

New Year's Day

Labor Day

Martin Luther King, Jr.'s Birthday

Columbus Day

President's Day

Veterans Day

Memorial Day

Thanksgiving Day

Independence Day

Christmas Day

Any other day designated by Federal statute, Executive order, or the President's proclamation.

- (b) When any holiday falls on a Saturday, the preceding Friday is observed. When any holiday falls on a Sunday, the following Monday is observed. Observance of such days by Government personnel shall not by itself be cause for an additional period of performance or entitlement of compensation except as set forth within the contract.
- (c) On-site personnel assigned to this contract shall not be granted access to the installation during the holidays in paragraph (a) of the clause, except as follows: the Contractor shall provide sufficient on-site personnel to perform round-the-clock requirements of critical work already in process, unless otherwise instructed by the Contracting Officer or authorized representative. If the Contractor's on-site personnel work during a holiday other than those in paragraph (a) of this clause, no form of holiday or other premium compensation shall be reimbursed as either a direct or indirect cost. However, this does not preclude reimbursement for authorized overtime work that would have been overtime regardless of the status of the day as a holiday.

- (d) The Contractor shall place identical requirements, including this paragraph, in all subcontracts that require performance of work on-site, unless otherwise instructed by the Contracting Officer.

(End of clause)

JSC 52.242-94 ADMINISTRATIVE LEAVE (SEP 2008)

- (a) When the NASA installation grants administrative leave to its Government employees (e.g., as a result of inclement weather, potentially hazardous conditions, or other special circumstances), the following personnel should also be dismissed upon notification of a center closure provided by the Contracting Officer:

- (1) Contractor personnel working on-site; and
- (2) Contractor personnel dedicated to the contract effort who are
 - (i) Working off-site within 10 miles of JSC; and
 - (ii) Unable to perform their NASA contract duties at their off-site location because their normal place of business has been or is expected to be negatively impacted by an emergency situation (e.g. has sustained damage, has been evacuated, etc.).

However, the Contractor shall provide sufficient on-site personnel to perform round-the-clock requirements of critical work already in process, unless otherwise instructed by the Contracting Officer or authorized representative.

- (b) Administrative leave granted under this clause shall be subject to modification or termination by the Contracting Officer and in all instances shall be subject to the availability of funds. The cost of salaries and wages to the Contractor for the period of any such excused absence shall be a reimbursable item of cost under this contract for effected employees in accordance with the Contractor's established accounting policy.
- (1) If a labor hour-based contract, administrative leave granted under this clause shall be accounted for consistent with productive hours under this contract for employees in accordance with the Contractor's established accounting policy.
 - (2) For fixed price contracts based on other than labor hours for deliverables, the Contracting Officer and Contractor shall as a precondition to any reimbursement negotiate an advanced agreement to determine the appropriate method in which to grant administrative leave under this clause.
 - (3) All invoices requesting payment under this clause shall be marked as "Administrative Leave in accordance with 52.242-94, Administrative Leave." All such invoices paid will be subject to review, audit, and revision when routine operations recommence.
- (c) The Contractor shall include this clause in all services subcontracts that include personnel in the categories described in paragraph (a) above.

(End of clause)

[END OF SECTION]

PROGRAM INTEGRATION AND CONTROL

PART II - CONTRACT CLAUSES**SECTION I - CONTRACT CLAUSES****I.1 LISTING OF CLAUSES INCORPORATED BY REFERENCE**

NOTICE: The following contract clauses pertinent to this section are hereby incorporated by reference:

I. FEDERAL ACQUISITION REGULATION (48 CFR CHAPTER 1)

CLAUSE NUMBER	DATE	TITLE
52.202-1	JUL 2004	DEFINITIONS
52.203-3	APR 1984	GRATUITIES
52.203-5	APR 1984	COVENANT AGAINST CONTINGENT FEES
52.203-6	SEPT 2006	RESTRICTIONS ON SUBCONTRACTOR SALES TO THE GOVERNMENT
52.203-7	JUL 1995	ANTI-KICKBACK PROCEDURES
52.203-8	JAN 1997	CANCELLATION, RESCISSION AND RECOVERY OF FUNDS FOR ILLEGAL OR IMPROPER ACTIVITY
52.203-10	JAN 1997	PRICE OR FEE ADJUSTMENT FOR ILLEGAL OR IMPROPER ACTIVITY
52.203-11	SEPT 2007	CERTIFICATION AND DISCLOSURE REGARDING PAYMENTS TO INFLUENCE CERTAIN FEDERAL TRANSACTIONS
52.203-12	SEPT 2007	LIMITATION ON PAYMENTS TO INFLUENCE CERTAIN FEDERAL TRANSACTIONS
52.203-13	DEC 2008	CONTRACTOR CODE OF BUSINESS ETHICS AND CONDUCT
52.204-2	AUG 1996	SECURITY REQUIREMENTS
52.204-4	AUG 2000	PRINTED OR COPIED DOUBLE-SIDED ON RECYCLED PAPER
52.204-7	APR 2008	CENTRAL CONTRACTOR REGISTRATION
52.204-9	SEPT 2007	PERSONAL IDENTITY VERIFICATION OF CONTRACTOR PERSONNEL

CLAUSE NUMBER	DATE	TITLE
52.209-6	SEPT 2006	PROTECTING THE GOVERNMENT'S INTEREST WHEN SUBCONTRACTING WITH CONTRACTORS DEBARRED, SUSPENDED, OR PROPOSED FOR DEBARMENT
52.215-2	JUN 1999	AUDIT AND RECORDS - NEGOTIATION
52.215-8	OCT 1997	ORDER OF PRECEDENCE - UNIFORM CONTRACT FORMAT
52.215-11	OCT 1997	PRICE REDUCTION FOR DEFECTIVE COST OR PRICING DATA - MODIFICATIONS
52.215-13	OCT 1997	SUBCONTRACTOR COST OR PRICING DATA - MODIFICATIONS
52.215-15	OCT 2004	PENSION ADJUSTMENTS AND ASSET REVERSIONS
52.215-18	JUL 2005	REVERSION OR ADJUSTMENT OF PLANS FOR POSTRETIREMENT BENEFITS (PRB) OTHER THAN PENSIONS
52.215-21	OCT 1997	REQUIREMENTS FOR COST OR PRICING DATA OR INFORMATION OTHER THAN COST OR PRICING DATA – MODIFICATIONS AND ALTERNATES II (OCT 1997) & III (OCT 1997) [INSERT ALT III: 3.5" DISK(s), USB Port(s), OR CD-ROM(s)]
52.216-7	DEC 2002	Allowable Cost and Payment (Applies to Travel & Materials Only; B.4 Table Non-Labor Resource Fixed Rate G&A shall apply and is not re- determinable)
52.216-18	OCT 1995	ORDERING [See Clause F.2 Period of Performance]
52.216-19	OCT 1995	ORDER LIMITATIONS [(a) \$1,000, (b)(1) \$100,000,000, (b)(2) \$100,000,000 (b)(3) 5, (d) 5]
52.216-22	OCT 1995	INDEFINITE QUANTITY [See Clause F.2 Period of Performance]
52.219-6	JUN 2003	NOTICE OF SMALL BUSINESS SET-ASIDE
52.219-8	MAY 2004	UTILIZATION OF SMALL BUSINESS CONCERNS
52.219-14	DEC 1996	LIMITATIONS ON SUBCONTRACTING
52.219-28	JUN 2007	POST-AWARD SMALL BUSINESS PROGRAM REPRESENTATION
52.222-1	FEB 1997	NOTICE TO THE GOVERNMENT OF LABOR

CLAUSE NUMBER	DATE	TITLE
		DISPUTES
52.222-3	JUN 2003	CONVICT LABOR
52.222-21	FEB 1999	PROHIBITION OF SEGREGATED FACILITIES
52.222-26	MAR 2007	EQUAL OPPORTUNITY AND ALTERNATE I (FEB 1999)
52.222-29	JUN 2003	NOTIFICATION OF VISA DENIAL
52.222-35	SEPT 2006	EQUAL OPPORTUNITY FOR SPECIAL DISABLED VETERANS, VETERANS OF THE VIETNAM ERA, AND OTHER ELIGIBLE VETERANS
52.222-36	JUN 1998	AFFIRMATIVE ACTION FOR WORKERS WITH DISABILITIES
52.222-37	SEPT 2006	EMPLOYMENT REPORTS ON SPECIAL DISABLED VETERANS, VETERANS OF THE VIETNAM ERA, AND OTHER ELIGIBLE VETERANS
52.222-41	NOV 2007	SERVICE CONTRACT ACT
52.223-5	AUG 2003	POLLUTION PREVENTION & RIGHT-TO-KNOW INFORMATION
52.223-6	MAY 2001	DRUG FREE WORKPLACE
52.223-10	AUG 2000	WASTE REDUCTION PROGRAM
52.225-13	JUN 2008	RESTRICTIONS ON CERTAIN FOREIGN PURCHASES
52.227-1	DEC 2007	AUTHORIZATION AND CONSENT AND ALTERNATE I (APR 1984)
52.227-2	DEC 2007	NOTICE AND ASSISTANCE REGARDING PATENT AND COPYRIGHT INFRINGEMENT
52.227-11	DEC 2007	PATENT RIGHTS – RETENTION BY THE CONTRACTOR (SHORT FORM) AS MODIFIED BY NFS 1852.227-11
52.227-14	DEC 2007	RIGHTS IN DATA-GENERAL AS MODIFIED BY NFS 1852.227-14 ALTERNATE II AND ALTERNATE III
52.227-16	JUN 1987	ADDITIONAL DATA REQUIREMENTS
52.228-7	MAR 1996	INSURANCE—LIABILITY TO THIRD PERSONS

CLAUSE NUMBER	DATE	TITLE
52.232-9	APR 1984	LIMITATION ON WITHHOLDING OF PAYMENTS
52.232-17	OCT 2008	INTEREST
52.232-18	APR 1984	AVAILABILITY OF FUNDS
52.232-23	JAN 1986	ASSIGNMENT OF CLAIMS
52.232-25	OCT 2008	PROMPT PAYMENT
52.232-34	MAY 1999	PAYMENT BY ELECTRONIC FUNDS TRANSFER – OTHER THAN CENTRAL CONTRACTOR REGISTRATION
52.233-1	JUL 2002	DISPUTES AND ALTERNATE I (DEC 1991)
52.233-3	AUG 1996	PROTEST AFTER AWARD AND (ALTERNATE I) (JUN 1985)
52.237-2	APR 1984	PROTECTION OF GOVERNMENT BUILDINGS, EQUIPMENT, AND VEGETATION
52.237-3	JAN 1991	CONTINUITY OF SERVICES
52.242-13	JUL 1995	BANKRUPTCY
52.243-1	AUG 1987	CHANGES-FIXED PRICE ALTERNATE II (APR 1984)
52.244-2	JUN 2007	SUBCONTRACTS
52.244-6	DEC 2008	SUBCONTRACTS FOR COMMERCIAL ITEMS
52.245-1	JUN 2007	GOVERNMENT PROPERTY
52.245-9	JUN 2007	USE AND CHARGES
52.246-25	FEB 1997	LIMITATION OF LIABILITY -- SERVICES
52.247-63	JUN 2003	PREFERENCE FOR U.S. FLAG AIR CARRIER
52.247-64	FEB 2006	PREFERENCE FOR PRIVATELY OWNED U.S. – FLAG COMMERCIAL VESSELS
52.248-1	FEB 2000	VALUE ENGINEERING
52.249-2	May 2004	TERMINATION FOR CONVENIENCE OF THE GOVERNMENT (FIXED-PRICE)
52.251-1	APR 1984	GOVERNMENT SUPPLY SOURCES
52.253-1	JAN 1991	COMPUTER GENERATED FORMS

II. NASA FAR SUPPLEMENT (48 CFR CHAPTER 18) CLAUSES

CLAUSE NUMBER	DATE	TITLE
1852.203-70	JUN 2001	DISPLAY OF INSPECTOR GENERAL HOTLINE POSTERS
1852.209-72	DEC 1988	COMPOSITION OF THE CONTRACTOR
1852.216-89	JUL 1997	ASSIGNMENT AND RELEASE FORMS
1852.219-74	SEPT 1990	USE OF RURAL AREA SMALL BUSINESSES
1852.219-76	JUL 1997	NASA 8 PERCENT GOAL
1852.223-74	MAR 1996	DRUG-AND-ALCOHOL -FREE WORKPLACE
1852.227-11	DEC 2007	PATENT RIGHTS--RETENTION BY THE CONTRACTOR (SHORT FORM) MODIFIES FAR CLAUSE 52.227-11
1852.228-75	OCT 1998	MINIMUM INSURANCE COVERAGE
1852.235-70	DEC 2006	CENTER FOR AEROSPACE INFORMATION
1852.237-70	DEC 1988	EMERGENCY EVACUATION PROCEDURES
1852.243-70	OCT 2001	ENGINEERING CHANGE PROPOSALS
1852.243-71	MAR 1997	SHARED SAVINGS

I.2 FAR 52.204-1 APPROVAL OF CONTRACT (DEC 1989)

This contract is subject to the written approval of the Procurement Officer for the NASA Johnson Space Center and shall not be binding until so approved.

(End of clause)

I.3 FAR 52.215-19 NOTIFICATION OF OWNERSHIP CHANGES (OCT 1997)

(a) The Contractor shall make the following notifications in writing:

- (1) When the Contractor becomes aware that a change in its ownership has occurred, or is certain to occur, that could result in changes in the valuation of its capitalized assets in the accounting records, the Contractor shall notify the Administrative Contracting Officer (ACO) within 30 days.

- (2) The Contractor shall also notify the ACO within 30 days whenever changes to asset valuations or any other cost changes have occurred or are certain to occur as a result of a change in ownership.

(b) The Contractor shall—

- (1) Maintain current, accurate, and complete inventory records of assets and their costs;
 - (2) Provide the ACO or designated representative ready access to the records upon request;
 - (3) Ensure that all individual and grouped assets, their capitalized values, accumulated depreciation or amortization, and remaining useful lives are identified accurately before and after each of the Contractor's ownership changes; and
 - (4) Retain and continue to maintain depreciation and amortization schedules based on the asset records maintained before each Contractor ownership change.
- (c) The Contractor shall include the substance of this clause in all subcontracts under this contract that meet the applicability requirement of FAR 15.408(k).

(End of clause)

I.4 FAR 52.252-2 CLAUSES INCORPORATED BY REFERENCE (FEB 1998)

This contract incorporates one or more clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. Also, the full text of a clause may be accessed electronically at this/these address(es):

_____ <http://www.arnet.gov/far/> _____

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- (a) Development and maintenance of CoFR flight products.
- (b) GFE verification review/paper closure.
- (c) Participation in all certification reviews. Includes both meeting support and presentation of status.
- (d) Flight integration support including manifest review and integration of products necessary to support CoFR signature.

3.1.1.6 Program Review Support

- (a) The Contractor shall track and report open paper/actions in support of configuration audits, acceptance reviews, and other major ISS Program milestones. The Contractor shall collect all open actions, open Verification Closure Notices (VCNs), and open issues for each assigned element/end-item and provide a summary report of open items and their status for each review to support the ISS Program Office engineering acceptance of the end item.
- (b) The Contractor shall coordinate review of data packages, coordinate action item development and acquisition from the ISS Program teams, and coordinate and track action item dispositions and closures. The Contractor shall provide open action status during reviews. The Contractor shall track action item status and closure. The Contractor shall prepare in-brief and out-brief presentations for ISS Program management.

3.1.1.7 Coordinate Office CR Evaluations

The Contractor shall serve as points of contact for CR processes and evaluations and manage the Office-specific CR review process including tracking of evaluations, comments and issues. The Contractor shall facilitate processing of CRs originating from, or evaluated by, the Office. The Contractor shall:

- (a) Identify appropriate Office evaluators and distribute the evaluation packages for internal review,
- (b) Contact evaluators to obtain status of their review and inform them of overdue evaluations,
- (c) Consolidate completed evaluations, comments, and issues and submit to the Office signatory for approval, and
- (d) Forward approved evaluation packages to the CM Receipt Desk.

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3.1.1.8 Office Metrics

The Contractor shall gather specified data, as required, and develop integrated office metrics package, in support of both internal and external reporting.

3.1.1.9 Office Web Content

The Contractor shall develop and maintain web page content for specified ISS Program teams and offices. The Contractor shall provide website administration, website design, and post new information to the websites. The Contractor shall develop and provide web pages in accordance with the requirements and guidelines defined in Section 1.4, Information Technology.

3.1.1.10 Engineering Services, Issue Resolution, Engineering Evaluation and Integration

The Contractor shall provide technical capabilities as requested to:

- (a) Recommend approval and acceptance of integration, operations, and system performance plans, procedures, analyses, tests, and reports;
- (b) Review documents, procedures, plans, and reports for discrepancies;
- (c) Provide assessments of the products to ensure they are in accordance with the Program baseline;
- (d) Perform impact assessments of ISS CRs against the Program baseline; and
- (e) Recommend solutions to technical issues.

3.1.1.11 Systems Engineering and Test and Verification (T&V) Support

The Contractor shall provide Systems Engineering and T&V support to include:

- (a) Integration and verification planning.
- (b) Joint test planning and implementation, in conjunction with systems teams.
- (c) Requirement verification.
- (d) Coordination of interfacing hardware and fit checks.
- (e) Book and documentation/data management.

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(1) Book management – Maintain, as required, SSP 50033, NASA/CSA Bilateral Integration and Verification Plan (BIVP); SSP 50034, NASA/ESA BIVP; SSP 50035, NASA/NASDA BIVP; SSP 50101, NASA/RSA BIVP; SSP 50281, Node 2 BIVP; SSP 50334, ESA/RSA BIVP; SSP 50406, NASA/ESA BIVP for Cupola. Develop and maintain SSP 50420, NASA/NASDA BIVP for HTV.

(2) Documentation/data management – Perform data capture of Visiting Vehicles documentation to ensure ISS cognizance of vehicle baselines.

(f) Cargo/hardware integration support including process development.

(g) Integrated system level planning including integrated scheduling, risk assessments, and common processes.

The Contractor shall perform Operational Maintenance Requirements and Specification (OMRS) functions including:

(a) Maintenance of the NSTS 08171, OMRS File 10 database [DRD PIC-VT-01, Operations and Maintenance Requirements and Specifications Database (OMRSD)], including software updates required to ensure the system operates properly.

(b) The Contractor will be responsible for administration, user accounts, and training for the OMRS database.

(c) Track requirement and change paper closure.

3.1.1.12 Project Management Support

The Contractor shall support the development of hardware and software systems by providing project management support to ensure that ISS Program needs are met; these needs include technical, cost, and schedule requirements. The Contractor shall ensure that assigned projects are developed in accordance with ISS Program processes. The Contractor shall produce project documentation as requested. The Contractor shall evaluate and track development issues and schedule issues from project inception through initial flight of the hardware/software system. The Contractor shall work closure of technical and schedule issues with the hardware/software providers. The Contractor shall coordinate processes and lead issue resolutions between the provider organizations, launch integration organizations, and the ISS Program. The Contractor shall identify threats to key milestone completions and corresponding ISS Program impacts. The Contractor shall prepare a weekly status report of technical issues and schedule compliance. The Contractor shall assist with risk management, including the coordination of budget, schedule, metrics, risks associated with individual development projects, and the rollup and trend analysis associated with the set of all development projects.

3.1.1.13 Hardware Delivery Support

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The Contractor shall support NASA in the acceptance of hardware purchased through the Vehicle Sustaining Engineering Team and hardware purchased under other contracts for the External Carriers Office. Tasks shall include providing concurrence for certification and DD250 prior to shipment of hardware to the flight preparation facility (typically KSC), monitoring and participating in schedule and manufacturing reviews related to the delivery schedule of hardware, and participating in design and requirement reviews to ensure that hardware needs to support ISS carriers are properly identified. The Contractor shall maintain a database to track all hardware deliverables between the ISS Program and its Contractors that support ISS carriers. The Contractor shall review ISS Program CRs involving ISS carriers to ensure that equipment requirements are properly identified and meet ISS Program requirements.

The Contractor shall coordinate deliveries of GFE, including hardware supplied by the JSC EVA Projects Office, and ensure that deliveries meet manufacturing, assembly, and test schedules. The Contractor shall implement requests and justify needs for EVA hardware deliveries to support ISS carriers.

3.1.1.14 Book Coordination Support

The Contractor shall provide Book Coordinator and Book Management functions to support the NASA Book Managers in the development and maintenance of assigned documentation. This support includes:

- (a) Coordinating inputs and tracking communications from the IP/Ps regarding the documents.
- (b) Coordinating and conducting meetings to evaluate the changes, documenting and distributing the minutes and actions, and tracking action closures.
- (c) Developing and making presentations to the appropriate control board/panel as required to obtain approvals for document release.

The documents to be Book Coordinated and /or Managed are listed in Contract Section C, Addendum 6, "Documents to be Book Coordinated/Managed".

3.1.1.15 Special Studies

The Contractor shall conduct special studies within the scope of the PI&C SOW as requested. The scope of the study, products, and schedule will be defined in an Indefinite Delivery/Indefinite Quantity (IDIQ) task order.

3.1.1.16 Mission Evaluation Room (MER) Data Systems

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The contractor shall provide the operational readiness of the ISS MER data systems to support missions, simulations and test:

- a) Maintain the operational readiness of the MER/Engineering Support Rom (ESR) web system.
- b) Verify the readiness of ISS MER Information Technology systems and information management procedures for ISS MER operations
- c) Design, develop, test and deliver MER software development products.

Development products may be either new software products, new requirements for existing products, or maintenance changes to existing products.

- d) Maintain the capability of the MER software development environment hardware and software necessary to support the software development and maintenance products specified above. This includes system administration, hardware and software maintenance upgrades for obsolescence, and development of I/T security plans.
- e) Maintain ISS MER software tools training material and provide training sessions on the use of the MER Control Center Complex (CCC) workstations and MER software products. Maintain a database to track ISS MER certification training and generate training reports.

Provide a "MER Admin" position to perform operational services for the ISS MER facility.3.2 Visiting Vehicle

The Contractor shall accomplish all work necessary to accommodate commercial customers to the ISS Program. The contractor shall ensure development of hardware and software systems by providing project management support to ensure that ISS Program needs are met; these needs include technical, cost, and schedule requirements. The contractor shall plan and coordinate ISS Program participation in the COTS design qualification and certification reviews. The Contractor shall ensure that assigned tasks are developed and worked within ISS Program processes. The Contractor shall evaluate and track development issues and schedule issues from project inception. The Contractor shall work closure of technical and schedule issues with hardware and software providers. This work will be performed in support of a NASA Reimbursable Space Act Agreement or another NASA Contract.

4.0 Conference Facility Management and Coordination

The contractor shall provide an off-site conference facility for the ISS Program (available beginning on October 1, 2010), capable of supporting multiple simultaneous meetings and teleconferences with a minimum of 3 main conference rooms and 6 splinter rooms. The conference facility shall be available to support meetings on workdays from 5:30 AM-9:00 PM (Houston time). Core hours shall be 8:00 AM – 5:00 PM. Support shall be provided before/after the core hours with a 24 hours notification. Access to support equipment and supplies (printer, copier, facsimile machine, refreshments) shall be provided. The facility shall have wireless and LAN connections to the JSC network.

The meeting facility coordination, badging, access security, export security, export and conference room scheduling shall be managed and provided by the contractor.

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5.0 RESERVED**6.0 SAFETY AND MISSION ASSURANCE (S&MA)**

The Agency Safety Initiative establishes the NASA safety hierarchy, which is the order NASA will use to prioritize its safety efforts. The safety hierarchy is as follows:

- (a) Safety for the public - NASA absolutely must protect the public from harm.
- (b) Safety for astronauts and pilots - NASA has to protect them as they expose themselves to risk in high hazard flight regimes.
- (c) Safety for NASA workforce - NASA is responsible for providing a safe and healthful workplace.
- (d) Safety for high-value equipment and property - NASA is a steward of the public's trust.

By focusing on the safety of NASA's mission and operations, NASA will improve quality and decrease cost and schedule.

6.1 S&MA MANAGEMENT AND ADMINISTRATION**6.1.1 Mission Assurance and Risk Management (MA&RM) Plan**

The Contractor shall develop, maintain, and implement the Mission Assurance and Risk Management (MA&RM) Plan in accordance with DRD PIC-SA-01.

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6.1.2 Quality Management System

The Contractor shall establish and maintain a Quality Management System (QMS) that complies with SAE AS9100. Third party certification/registration is not required. If the Contractor is SAE AS9100 registered and subsequently changes registrars, loses registration status, or is put on notice of losing registration status, the Contractor shall notify the NASA Contracting Officer within three (3) days of receiving such notice from the registrar.

The Contractor shall maintain the ISS Program S&MA quality records system in accordance with SSP 41173, Space Station Quality Assurance Requirements, and SAE AS9100.

6.1.3 Audit/Surveillance

The Contractor shall provide access to data, personnel, and facilities for Government audit/surveillance of the Contractor's plans, procedures, and processes when deemed necessary by the Government. The Contractor shall provide written responses to audit/surveillance findings that are delivered to and accepted by the Government.

6.1.4 Safety and Health

The Contractor shall develop and implement a process to identify how personnel and property will be protected from injury or harm and ensure the safety of all working conditions throughout the performance of the contract. The process shall provide for hazardous operation surveillance, hazardous procedure review, and risk assessments associated with deviations from procedures or safety and health requirements. The Contractor shall comply with NASA-Installation safety and health requirements and related processes when performing Contractor work onsite at NASA installations. The Contractor shall develop, implement and maintain a Safety and Health (S&H) Plan in accordance with DRD PIC-SA-02. Upon approval, the S&H Plan shall be incorporated into the contract as Attachment J-3. The Contractor shall document the assessments in monthly safety and health metrics in accordance with DRD PIC-SA-03 and perform an annual Safety and Health Self-Evaluation in accordance with DRD PIC-SA-04.

6.1.4.1 Mishap Investigating and Reporting

(a) The Contractor shall investigate and report mishaps, in accordance with NPR 8621.1, NASA Procedural Requirements for Mishap Reporting, Investigating, and Record Keeping, and NPR 8715.3, NASA General Safety Program Requirements. All investigation reports shall include a human factors assessment, root cause analysis and any remedial/corrective actions performed. These reports shall encompass mishaps occurring during the contracted period as follows:

- (1) All mission failures and type A and B mishaps resulting in injury to Contractor personnel or equipment damage occurring onsite at NASA facilities and offsite at Contractor facilities.

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- (2) Type C mishaps resulting in equipment damage onsite at NASA facilities and offsite at Contractor facilities.
- (3) Type C mishaps resulting in injury to Contractor personnel located onsite at NASA facilities.
- (4) Incidents and close calls occurring onsite at NASA facilities.
- (b) The Contractor shall develop and implement a call tree with Government contacts for the reporting of a mishap, near-miss incident, equipment problem or a system going out of specification. The Contractor shall use the call tree to report incidents and problems within four hours of the occurrence. Type C injury mishaps occurring offsite at Contractor facilities shall be reported in a monthly summary of such injuries.
- (c) The Contractor shall enter mishap reporting and provide summary data as instructed on the JSC Safety Homepage <http://www6.jsc.nasa.gov/safety/> and per JPR 1700.1, JSC Safety and Health Handbook.

6.1.5 Lessons Learned

The Contractor shall participate in the Lessons Learned in accordance with NPR 7120.5, NASA Program and Project Management Processes and Requirements, and JPR 2310.1, JSC Organizational Learning Program. The Contractor shall enter the lessons learned into the Government provided Lessons Learned per DRD PIC-SA-08.

6.2 S&MA INTEGRATION

6.2.1 Technical Integration

- (a) The Contractor shall perform S&MA technical integration of IP Elements, visiting vehicles, cargo, and payloads. This includes participation in Safety Reviews, Milestone Reviews and TIMs. Technical integration includes participating in the identification and resolution of technical issues affecting S&MA, receiving and distributing S&MA data between NASA and IPs, tracking of open issues and actions resulting from the Milestone Reviews and TIMs that impact the safety, reliability, and quality assurance aspects for each flight and supplying the data to the Mission Integration Team.
- (b) The Contractor shall periodically status S&MA issues and open action items for the IP Elements, visiting vehicles, cargo and payloads to ISS Program boards and panels. The Contractor shall coordinate reporting and ensure dispositioning of applicable S&MA issues by the IP/P).
- (c) The contractor shall support NASA in the implementation of bilateral agreements.

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- (d) The Contractor shall evaluate ISS Program and assigned Shuttle CRs, participate in the development of requirements and processes and support working groups, and telecons.
- (e) The contractor shall provide CoFR related support to the SMAP, S&MA Readiness Review (SMARR), and applicable ISS Program boards to include presentation development, administrative support, and status integration.

6.2.2 International Partner/ Visiting Vehicle Integration

The Contractor shall prepare agendas, minutes and protocols, letters of invitation, and work logistics in support of the Joint American/Russian Safety Working Group (JARSWG) telecoms, TIMs, and meetings. The Contractor shall provide Safety and Mission Assurance (S&MA) support to the ISS IP and Visiting Vehicle (VV) communities. The Contractor shall coordinate ISS IP/VV S&MA processes in support of TIMs, telecons, and major reviews by reviewing team inputs, resolving discrepancies, and representing the organization locally and overseas. The Contractor shall provide support in closure of requirements, open issues/Review Item Discrepancies (RIDs). The Contractor shall review of CRs, and Safety Analysis Reports (SARs). The Contractor shall work jointly with the SAIC Safety Review Panel (SRP) Organization for the review and update of ISS IP/VV SARs. The Contractor shall perform S&MA assessments and evaluations of the IP/VV Elements systems and hardware design, safety data analysis, integration, requirements and processes development, anomaly/failure investigation, procedures and operations to ensure the safe operation of ISS. Additionally, the Contractor shall coordinate interpretation and translation support for Bilateral Mission Assurance and Multilateral Safety meetings and faxes.

6.2.3 Document Maintenance

The Contractor shall provide book coordination functions for documents listed in Addendum 6, "Documents to be Book Coordinated /Managed" including the following ISS Program S&MA documents:

- SSP 50062, NASA/CSA Bilateral Safety and Mission Assurance Requirements
- SSP 50145, NASA/NASDA Bilateral Safety and Product Assurance Requirements
- SSP 50146, NASA/RSA Bilateral Safety and Mission Assurance Process Requirements for ISS
- SSP 50182, NASA/ASI Bilateral Safety and Product Assurance Requirements
- SSP 50191, NASA/ESA Bilateral Safety and Product Assurance Requirements
- SSP 50346, NASA/ASI Nodes Bilateral Safety and Product Assurance Requirements

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- JPD 306, Establishment of the Program Risk Management System (PRMS)
- SSP 50175, ISS Risk Management Plan
- JPD 328, ISS Corrective Action Plan/Preventive Action Process
- JPD 315, Limited Life Item (LLI) Tracking and Control
- SSP 30223, Problem Reporting and Corrective Action (PRACA) for Space Station Program
- SSP 30695, Acceptance Data Package Requirements Specification
- SSP 41173, Space Station Quality Assurance Requirements
- SSP 50190, ISS Program Contingency Action Plan
- SSP 50200-01-ANX E, Station Program Implementation Plan Volume 1, Station Program Management Plan, Annex E: S&MA/Program Risk Plan; ISS Risk Management Plan
- SSP 50287, Hardware/Software Acceptance Process

6.3 PROGRAM RISK MANAGEMENT

6.3.1 Management of Risk Process

The Contractor shall maintain the risk management process and the ISS Risk Database in accordance with SSP 50175, ISS Risk Management Plan; JPD 306, Establishment of the Program Risk Management System (PRMS); and NPR 8000.4, Risk Management Procedural Requirements. This includes ensuring the integration of all data and data integrity of the Risk Management Database and associated linkage with the MIS.

The Contractor shall identify S&MA risks and provide input to the risk process utilizing the ISS Risk Database in accordance with SSP 50175 and JPD 306 as well as coordinate risks with NASA counterparts.

The Contractor shall facilitate any ISS Program S&MA corrective action/preventative action responses in accordance with JPD 328, ISS Corrective Action Plan/Preventive Action Process, including coordinating responses and entering updates into the JSC Quality Process Improvement Database. The process requires the identification and mitigation of adverse trends, potential events, or significant anomalies that may adversely affect multiple programs, projects, or divisions.

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The Contractor shall coordinate risks in support of risk advisory boards in accordance with JPD 306 and SSP 50175.

6.3.2 Probabilistic Risk Assessment (PRA)

The Contractor shall perform the PRA modeling and trade studies in accordance with NPR 8705.5, Probabilistic Risk Assessment (PRA) Procedures for NASA Programs and Projects. Modeling and trade studies may include the ISS and any visiting vehicle, including those that are in a conceptual design phase. The Contractor shall use Systems Analysis Programs for Hands-on Integrated Reliability Evaluations (SAPHIRE) PRA modeling/development application identified in Addendum 4, Table 2.

The Contractor shall perform trade and sensitivity analyses using the Probabilistic Risk Assessment and make recommendations as appropriate. Trade studies and analyses will include (i) background on problem, (ii) assumptions and constraints, (iii) scope of analysis, (iv) methodology, (v) detailed analysis, (vi) results, and conclusion.

6.3.3 RESERVED

6.4 ISS SAFETY PROGRAM

In support of the CoFR, the Contractor shall develop safety assessments in accordance with SSP 30309, Safety and Risk Assessment Requirements Document, and hazard reports in accordance with Hazard Reports and System Description (DRD PIC-SA-07). Safety assessments and hazard reports shall include actual and/or planned cable, hose and duct drag-through; IVA hardware and/or cargo stowage; and internal volume configuration.

The Contractor shall obtain Program approval in accordance with SSP 30599, Safety Review Process. This requires supporting the appropriate Safety Review Panels, ISS boards and panels, teleconferences and working groups.

6.5 RESERVED

6.6 QUALITY ASSURANCE

6.6.1 Problem Reporting System Maintenance

The Contractor shall maintain the ISS Program Problem Reporting and Corrective Actions (PRACA) process and database in accordance with SSP 30524 and SSP 30223. This activity includes the coordination of the PRACA process with the problem resolution teams to facilitate issue resolution.

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6.6.2 Reserved**6.6.3 Reserved****6.7 OPERATIONS SAFETY**

The Contractor shall perform Operations Safety requirements in support of IP/Ps and ISS Safety Program as follows:

6.7.1 Documentation Verification

For all flights, the Contractor shall perform flight and/or stage specific integrated safety assessments for Mission Integration in accordance with ISS safety requirements of SSP 50261-01 and -02; SSP 50021, Safety Requirements Document; and SSP 30309, Safety Analysis and Risk Assessment Requirements Document; and Flight Rules. In addition to the requirements of paragraph 6.4, the safety assessments shall also focus on manifest priorities and documentation (hazard toxicity and safety certification), increments, mission templates and planning periods.

6.7.2 Mission Integration and Operations Planning

The Contractor shall provide technical expertise in the development of S&MA requirements, operations, and mission plans for integrated ISS Program increments, flights, stages and generic planning.

The Contractor shall participate by providing technical expertise and S&MA representation in the strategic and tactical planning activities and ensure that safety, mission success and potential risks are included in the development of planning periods, increments, flights, and/or stage requirements (see Table 6.7.H-1 Additional Resource Documents). The Contractor shall provide representation at the appropriate ISS Program level boards, panels, and working groups which address generic requirements for strategic and tactical planning.

The Contractor shall provide representation and participation during the programmatic planning and development of ISS Program generic requirements for the overall tactical and strategic plan development.

TABLE 6.7.H-1 ADDITIONAL RESOURCE DOCUMENTS

#	Document #	Document Title
1	SSP 50200-xx	SPIP documents (specifically documents Volume 1, 2, and 8)
2	SSP 50489	Mission Integration Templates

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3	SSP 50261-01	Generic Groundrules, Requirements, and Constraints Part 1: Strategic and Tactical Planning
4	SSP 50261-02	Generic Groundrules and Constraints Part 2: Execute Planning
5	SSP 50021	Safety Requirements Document
6	SSP 50005	ISS Flight Crew Integration Standard (NASA-STD-3000/T)
7	SSP 41000 Series	System Specifications for the ISS
8	SSP 50562	ISS Program Off-Nominal Situation Plan
9	SSP 54100	IDRD Flight Program
10	SSP 50448	Station Development Test Objectives

6.7.3 RESERVED**6.7.4 Launch Package Management Team Representative**

The Contractor shall serve as a technical member of the LPM Team, actively participate on LPM Team to ensure Flight IDRDs and sub-products (annexes, etc.) are developed to include safety requirements and priorities; identify safety issues and closure recommendations; negotiate with the ISS Program community; perform special assessments, and perform integration of safety-related issues.

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6.7.5 ISS Program CRs

The Contractor shall coordinate and facilitate S&MA CRs as assigned. The Contractor shall evaluate CRs for S&MA impacts, complete the needed evaluation forms and make any needed presentation material and presentations, if required, to the various boards, panels and teams.

The Contractor shall review Mission Integration and Operations' plans, On-Orbit Stowage Capabilities and Requirements (OSCARs), manifests and flight planning change requests and participate in CR meetings as needed.

6.7.6 Document Maintenance

The Contractor shall provide book coordination functions which include preparation, distribution, and processing for the following ISS Program S&MA documents:

- SSP 30234, Failure Modes and Effects Analysis and Critical Items List (FMEA/CIL) Requirements for Space Station
- SSP 30309, Safety Analysis and Risk Assessment Requirements Document
- SSP 30599, Safety Review Process
- SSP 50021, Safety Requirements Document
- SSP 50038, Computer-Based Control System Safety Requirements
- SSP 50145, NASA/NASDA Bilateral S&MA Requirements
- SSP 50231, Safety and Mission Assurance Certification of Flight Readiness Implementation Plan
-

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Addendum 1 - Key Terms

Assembly Complete (AC) Vehicle. The on-orbit Space Station configuration exclusive of the external interfaces defined in SSP 41000, System Specification for the International Space Station.

Book Coordinator. A function that provides for the development of new documents or updates to existing documents and has the following responsibilities:

- Integrating inputs from technical experts, coordinating updates between submitters and reviewers, documenting resolutions, and maintaining the technical consistency of the document.
- Be responsible for the technical content of the document.
- Coordinating inputs, tracking communications from the IP/Ps regarding the documents (including the development of Notice of Document Changes [NDCs] for documents that affect Russia), and coordinating translations.
- Updating the document using CRs, interfacing with CM and performing DQA, in accordance with the ISS Program CM approved process and schedule.
- Coordinating and conducting coordination meetings, production and distribution of minutes and actions, tracking closures.
- Developing and making presentations to the appropriate control board/panel as required to obtain approval.
- Ensure that an electronic and hard copy of the conformed document is delivered to ERU for baseline release.

Cargo Element. A flight element that has physical and/or functional interfaces to the launch vehicle.

Change Screening Board (CSB). A change screening group that meets weekly to screen all new CRs to:

- ensure the assignment to the appropriate board/panel,
- establish change evaluation due dates,
- identify mandatory evaluators, and
- identify Change Engineers if none are noted.

The CSB also has authority to reject unacceptable or inappropriate CRs.

Control Board. A management forum which establishes and control changes to the baseline and associated documentation and provides a forum for resolving related technical and schedule issues. The specific board scope, responsibilities, authority, and membership are defined in their charter.

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Control Panel. A subordinate forum to a parent control board with delegated responsibility and control as defined in their charter.

Document Quality Assurance (DQA). An administrative function to ensure documentation and documentation updates are prepared in accordance with document standards contained in SSP 50010, Standards for ISS Program Documentation.

Element. An integrated, assembled set of hardware and/or software capable of supporting an operational role such as the U.S. Lab module. It is the primary subdivision of the ISS Vehicle for purpose of accommodation in a launch vehicle.

Engineering Release Unit (ERU). A position within CM/DM that track, control, and release configuration managed drawings and documents. ERU provides a controlled archival system for all reproduced drawings and documents, including the maintenance of engineering release records.

Flight. The sequence of events that take place between lift-off and landing of a launch vehicle.

Flight Support Equipment (FSE). An item required to integrate ORU/Contingency Items into/onto the carrier used in the shuttle payload bay or any pressurized volume which is transported to orbit by a launch vehicle (e.g. adapter plates, shrouds).

Increment Definition Requirements Document (IDRD). Documentation of ISS Program requirements for the flights and increments within an increment. These include the launch dates, traffic plans, top-level manifest, resource allocations, and specific flight/increment requirements and priorities.

Increment. The time frame is defined by each crew expedition. The duration of an increment is the time period from the launch of a designated flight crew to the landing of the return vehicle for that crew.

International Partners/Participants. Those non-U.S. space agencies that formally participate in the ISS. The International Partners are the CSA, ESA, JAXA, and the Roscosmos. ASI is an International Participant.

ISS Program Offices. The programmatic organizations that report to the ISS Program Manager. Some examples of the current offices are Mission Integration and Operations Office/OC, Vehicle Office/OB, Program Integration Office/OM, etc.

Launch Package. Full complement of ISS hardware and software delivered or returned on a flight to the ISS.

Launch Package Manager (LPM). The LPM provides leadership and technical direction of teams responsible for the development, integration, readiness for flight, and on-orbit

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checkout of a Launch Package. Teams led are multidisciplinary, involving systems engineering, systems and element development, verification, operations, launch processing, logistics, IP integration, and payload integration.

Master File. The contents of the Master File will contain all original signatures (e.g. Interface Memorandums [IFMs], PIRNs, DCNs, CRs, and minutes) that are associated with all ICD and specification products approved by the ICWG members and Program participants.

Mission Evaluation Room (MER). The MER provides on-console engineering support during real time operations.

Milestone Reviews. A generic term used in place of listing major programmatic reviews such as but not limited to design reviews, acceptance reviews, launch integration reviews, CoFR reviews, Pre-shipment reviews, etc. It may apply to some or all of these reviews based on the context in which it is used.

Mission Integration Plan (MIP). ISS Program/SSP joint document that captures the inter-program requirements and constraints for Shuttle operations support to ISS increment operations including ascent and descent, flight requirements for ISS Cargo Elements (CEs), and joint operations while the Shuttle is attached to the ISS.

Management Information System (MIS). A computerized information-processing system designed to keep ISS Program and other personnel apprised of the most current ISS technical, financial, workforce, schedule and operational information, including issues and risks. MIS links ISS core business issues and goals with the technical aspect of the Program.

Notice of Document Change (NDC). Process developed specifically for Russia to enable documentation updates to proceed with interim approval from the contractor while formal Roscosmos approval is pending. Form used when processing document changes with Rocket Space Corporation – Energia (RSC-E) with details all from/to changes. This process is documented in SSP 50123, Configuration Management Handbook.

Nominal. The expected value or condition, as measured in terms of functional or performance characteristics, of a component, subsystem, or system operating normally in its intended environment.

Orbital Replacement Unit (ORU). Equipment that may be removed from the on-orbit ISS and replaced with a like unit for maintenance activities.

Orbital Replacement Unit Data Dictionary (ORUDD). The ORUDD is a web portal that accesses ORU data within existing ISS Program approved data repositories, such as Vehicle Master Database (VMDB), Hardware History Retrieval System (HHRS), and Problem Reporting and Corrective Action (PRACA).

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Orbital Support Equipment (OSE). An item required to support flight hardware in the on-orbit ISS. OSE items are required to accommodate integrated assemblies used to deliver ORU/Contingency Items to/from on-orbit worksites and on-orbit storage locations (e.g. micro-meteoroid debris protection).

Payload. If not otherwise modified, “payload” in this document refers to an ISS Program scientific or technology payload. Also referred to as utilization or experiment.

Program authorized repository. A NASA owned database/repository that is accessible by all ISS Program participants.

Resources. Identifies a particular subset of ISS on-orbit capabilities used in support of system and utilization operations (e.g., power, heat rejections, communications, crew time, etc.)

Return to Service. The time between when a computer or system fails or becomes unavailable and the time when the system has been repaired or restored and is available again to users.

Secretariat. A senior CM person supporting configuration control boards/panels as the CM representative. Responsibilities include controlling the flow/schedule of the meeting, ensuring all actions are properly captured, reviewing meeting minutes, ensuring any change paper requiring signature is signed if approved, and answering any CM specific issues or questions.

Segment. A grouping of elements that are functionally related and often physically interface (e.g., U.S. On-Orbit Segment or U.S. Ground Segment).

Stage. The on-orbit configuration of the ISS after each flight that adds capability to the ISS. This can also refer to a designated period between launch vehicles defined by the ISS Program for requirement documentation and planning purposes.

Strategic Flight Program. The Strategic Flight Program is a strategic integrated plan for the assembly sequence, EVA plan, integrated flight schedule of all vehicles docking to the ISS Vehicle, crew rotation plan, and the cargo element flight assignments in the strategic timeframe.

Strategic timeframe. Long term planning that generally transitions to the tactical timeframe approximately two years prior to the flight or real-time operations.

Sub-element Number. The Sub element Number is used to track data in the VMDB for cargo elements, delivered on a carrier, visiting vehicles (other than the Orbiter), and any individual items that is deploy/retract, rotate/translate, or any major item that relocates

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from the original installed location and can have a significant impact to the ISS mass properties.

Subsystem. A functional grouping of components that combine to perform a major function (e.g., electrical power, attitude control, propulsion, etc.).

Sustaining Engineering. Sustaining Engineering (SE) is the design engineering expertise provided after the development of hardware/software items is completed and these items have been provisionally accepted.

Systems Analysis. The performance of integrated, multidisciplinary engineering and analysis to assure:

- the required performance or survival of subsystems before, during, and after installation on-orbit,
- the minimized consumption of expendable resources,
- the optimization of Program goals for schedule and scientific requirements,
- the meeting of constraints and requirements of attached, approaching, and, departing vehicles, and
- the continued performance of all of the above in the induced and natural environments, which pertain to the ISS under well defined, operating regimes and assumptions.

Systems Analysis is complementary to, does not duplicate, and requires syntheses of data from: subsystems engineering, specialty engineering, and sustaining engineering, which are maintained under the ISS Sustaining Engineering Contract and in some cases under separate Government contracts and internal capabilities, as specified.

Tactical timeframe. A period of time from approximately 2 years prior to the launch or real-time operations.

Technical Interchange Meeting. Meetings between two or more ISS Program technical teams to exchange information, develop processes, and work issues.

Validation. The process of formally approving the developed process, services, or products at the conclusion of operational test and evaluation. This approval indicates developed processes, services, or products satisfy their intended operational mission.

Vehicle. The Vehicle includes the whole, integrated, on-orbit station (including hardware and software) as it exists today and the future station configuration as it evolves to the Assembly Complete (AC) configuration. The vehicle configuration is defined by the particular point in time under assessment or discussion.

PROGRAM INTEGRATION AND CONTROL

Verification. The activities which assure that each level of requirements (including test requirements) or specifications correctly echoes the intentions of the immediately superior level of requirements.

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**Addendum 2 - Government Furnished Data
Table 1 Government Furnished Applications**

Current Contractor	Application Name	Acronym	Size of Effort	Complexity	DBMS*	Development Language or COTS Dependencies	OS*	# of Users/ids
PI&C	ExCATT	ExCATT	Small	Small	Access	N/A	Windows	N/A
PI&C	SCROALE	SCROALE	Small	Small	Access, Visio	N/A	Windows	N/A
PI&C	Traffic Resource Analysis Model	TRAM	Small	Small	Access	N/A	Windows	N/A
PI&C	Station Reboost Analysis Program	STRAP	Small	Small	N/A	C++	Windows	N/A
PI&C	Total Propellant Summary	TPS	Small	Small	N/A	Excel	Windows	N/A
PI&C	Integrated Energy Balance Tool	IEBT	Small	Small	N/A	Excel	Windows	N/A
PI&C	Channelized Energy Balance Tool	CEBT	Small	Small	N/A	Excel	Windows	N/A
PI&C	Hardware Interfaces Tracking System	HITS	Small	Small	Access	N/A	Windows	N/A
PI&C	MODEl GENerator	MODGEN	Small	Small	N/A	C++, Fortran	Unix	N/A
PI&C	ISS Program Scheduling System		Small	Small	Oracle	AMSRealtime	Windows	25
PI&C	Integrated Office Management System	IOMS	Small	Medium	Oracle	Cold Fusion, Oracle PL/SQL, JavaScript, cgi	Solaris	27
PI&C	Bulletin Board Tool Suite	BB Tools	Small	Medium	Oracle	Cold Fusion, Perl, JavaScript, cgi	Solaris	322
PI&C	Electronic Document Management Systems	EDMS	Large	large	Oracle	Documentum, Crystal Reports	Windows	5000
PI&C	ISS Analytical Cost Model	ISSAC	Small	Small	N/A	Excel	Window	12

* DBMS -- Data Base Management System
OS -- Operating System

Addendum 2 - Government Furnished Data
Table 2 Government Furnished Applications

The data submittals provided by the IPs via the following BDEALS documents listed in the table below will be made available as GFD to the contractor in support of execution of the Program Integration and Control contract. The specific content, format and schedule of the data submittals are contained in the Data Item Descriptions (DID) in the IP BDEALS documents.

Document No.	Document Title
SSP 50124	NASA/CSA Bilateral Data Exchange Agreements, Lists and Schedules (BDEALS)
SSP 50126	NASA/NASDA Bilateral Data Exchange Agreements, Lists and Schedules (BDEALS)
SSP 50127	NASA/ESA Bilateral Data Exchange Agreements, Lists, and Schedules (BDEALS)
SSP 50137	NASA/RSA Bilateral Data Exchange Agreements, Lists and Schedules (BDEALS)
SSP 50407	NASA/ESA Bilateral Data Exchange Agreements, Lists, and Schedules (BDEALS) for Cupola 1
SSP 50611	NASA/ESA Bilateral Data Exchange Agreements, Lists, and Schedules (BDEALS) for ATV
SSP 50614	NASA/JAXA Bilateral Data Exchange Agreements, Lists, and Schedules (BDEALS) for HTV

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ADDENDUM 3 – GOVERNMENT FURNISHED IT SYSTEMS

Systems are in bold type with system elements listed below	Bldg. Location	Room	Performance Standards Principle Period Of Performance (PPP)	Performance Standards Minimum Availability (%)	Performance Standards Hardware Maximum Time to Service Time (i.e. 4 hours)	Operations Required, Shifts/Wk	S/W Release Support (Y/N)	User Support (Y/N)	ID/Account Mgmt (Y/N)
Infrastructure Servers									
JSC-ISS File or Windows servers									
ISS-SAO (Network Management)	B46	300	N/A	N/A	N/A	N/A	N	N	Y
ISS-COHESION (Configuration Management)	B46	300	N/A	N/A	N/A	N/A	N	N	Y
ISS-CW (Cisco Works Management)	B46	300	N/A	N/A	N/A	N/A	N	N	Y
JS-ISS-SRV4 (Urchin)	B46	300	N/A	N/A	N/A	N/A	N	N	Y
JS-ISS-GHSV1 (Symantec Ghost Server)	B4S	3403A	N/A	N/A	N/A	N/A	N	N	Y
Eureka1	B46	300	24X7	N/A	8Hr, M-F 4 hrs, 24X7	8am-5pm	Y	N	N
Blade193	B46	300	24X7	N/A	4 hrs, 24X7	8am to 5pm	Y	N	Y
Spectra Logic T-950 Tape Robot	B46	300	24X7	N/A	Next Day	8am to 5pm	Y	N	Y
oracon	B46	300	24X7	N/A	8Hr, M	8am to 5pm	Y	N	Y
Sc2-aws	B46	300	24X7	N/A	8Hr, M	8am to 5pm	Y	N	N
Sc3-aws	B46	300	24X7	N/A	8Hr, M	8am to 5pm	Y	N	N
ruthere	B46	300	24X7	N/A	8Hr, M	8am to 5pm	Y	N	Y

SECTION C
Addendum 2

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Kepler1	B46	300	24x7	99.0%	4Hr, 24x7	8AM-5PM	Y	N	Y
Systems are in bold type with system elements listed below									
ISS Production Facility (IPF)									
JS-ISS-KIBO4 (File Server Cluster)	B46	300	24X7	99.0%	4 hrs, 24x7	8am to 5pm	Y	Y	Y
JS-ISS-KIBO5 (File Server Cluster)	B46	300	24X7	99.0%	4 hrs, 24x7	8am to 5pm	Y	Y	Y
JS-ISS-SAO (Print Cluster)	B4S	5403A	24X7	99.0%	8 hrs, M-F	8am to 5pm	Y	Y	Y
JS-ISS-SRV9 (Print Cluster)	B4S	5403A	24X7	99.0%	8 hrs, M-F	8am to 5pm	Y	Y	Y
JSC-ISS-OCE (Scan/Office Tracker)	B4S	3805	24X7	99.0%	8 hrs, M-F	8am to 5pm	Y	Y	Y
ISS-AFF-P02 (Adlib)	B46	300	24x7	99.0%	8Hr, M-F	8AM-5PM	Y	Y	Y
ISS-CFF-P01	B46	300	24x7	99.0%	8Hr, M-F	8AM-5PM	Y	Y	Y
JS-ISS-SQLP (SQL server)	B46	300	24x7	99.0%	4Hr, 24x7	8AM-5PM	Y	Y	Y
JSC-ISSPRD01 (Windows Web Server)	B46	300	24x7	99.0%	4Hr 24x7	8AM-5PM	Y	Y	Y
Ditapp02	B46	300	24x7	99.0%	4Hr, 24x7	8am-5pm	Y	Y	Y
macbeth	B46	300	24x7	99.0%	8Hr, 24x7	8AM-5PM	Y	N	Y
ISS-TERMSRV1 (Windows Terminal Server)	B46	300	24x7	99.0%	4Hr, 24x7	8AM-5PM	Y	Y	Y
BigIP-F5-1p	B46	300	24x7	99.0%	8Hr, 24x7	8AM-5PM	Y	N	Y
BigIP-F5-2p	B46	300	24x7	99.0%	8Hr, 24x7	8AM-5PM	Y	N	Y

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nome	B46	300	24x7	99.0%	24Hr, 24x7	8AM-5PM	Y	N	Y
Iss-edmsweb	B46	300	24x7	99.0%	24Hr, 24x7	8AM-5PM	Y	Y	Y
Iss-edmscontent	B46	300	24x7	99.0%	24Hr, 24x7	8AM-5PM	Y	Y	Y
Iss-edmsidx	B46	300	24x7	99.0%	24Hr, 24x7	8AM-5PM	Y	Y	Y
Iss-edmsadts	B46	300	24x7	99.0%	24Hr, 24x7	8AM-5PM	Y	Y	Y
Iss-edmsecis	B46	300	24x7	99.0%	24Hr, 24x7	8AM-5PM	Y	Y	Y
Iss-ora-edms	B46	300	24x7	99.0%	24Hr, 24x7	8AM-5PM	Y	Y	Y
Jsc-iss-hvprdl	B46	300	24x7	99.0%	24Hr, 24x7	8AM-5PM	Y	Y	Y
Jsc-iss-hvprd2	B46	300	24x7	99.0%	24Hr, 24x7	8AM-5PM	Y	Y	Y

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Systems are in bold type with system elements listed below	Bldg. Location	Room	Performance Standards Principle Period Of Performance (PPP)	Performance Standards Minimum Availability (%)	Performance Standards Hardware Maximum Time to Service Time (i.e. 4 hours)	Operations Required, Shifts/Wk	S/W Release Support (Y/N)	User Support (Y/N)	ID/Account Mgmt (Y/N)
IPF for development efforts									
Oort	B46	300	24x7	99.0%	8Hr, M-F	8AM-5PM	Y	Y	Y
JS-ISS-SQLDI (SQL Server)	B46	300	24x7	99.0%	8Hr, M-F	8AM-5PM	Y	Y	Y
Destiny3	B46	300	24x7	99.0%	8Hr, M-F	8AM-5PM	Y	Y	Y
Destiny4	B46	300	24x7	99.0%	8Hr, M-F	8AM-5PM	Y	Y	Y
Hale3	B46	300	24x7	99.0%	8Hr, M-F	8AM-5PM	Y	Y	Y
Hale4	B46	300	24x7	99.0%	8Hr, M-F	8AM-5PM	Y	Y	Y
Agent86	B46	300	24x7	99.0%	8Hr, M-F	8AM-5PM	Y	Y	Y
Restoreit1	B46	300	24x7	99.0%	8Hr, M-F	8AM-5PM	Y	Y	Y
Restoreit2	B46	300	24x7	99.0%	24Hr, M-F	8AM-5PM	Y	Y	Y
JSC-ISSDEV01 (Windows Web Server)	B46	300	24x7	99.0%	24Hr, M-F	8AM-5PM	Y	Y	Y
duncan	B46	300	24x7	99.0%	8Hr, M-F	8AM-5PM	Y	Y	Y
ISS-CFF-D01 (CFF App)	B46	300	24x7	99.0%	24Hr, 24x7	8AM-5PM	Y	Y	Y
BigIP-F5-1d	B46	300	24x7	99.0%	8Hr, 24x7	8AM-5PM	Y	N	N
BigIP-F5-1d	B46	300	24x7	99.0%	8Hr, 24x7	8AM-5PM	Y	N	N
Denali	B46	300	24x7	99.0%	24Hr, 24x7	8AM-5PM	Y	N	N
Iss-devedmsweb	B46	300	24x7	99.0%	8Hr, 24x7	8AM-5PM	Y	N	N
Iss-devedmscontent	B46	300	24x7	99.0%	8Hr, 24x7	8AM-5PM	Y	Y	Y
Iss-devedmsidx	B46	300	24x7	99.0%	8Hr, 24x7	8AM-5PM	Y	Y	Y
Iss-devedmsadts	B46	300	24x7	99.0%	8Hr, 24x7	8AM-5PM	Y	Y	Y

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Iss-devedmsecis	B46	300	24x7	99.0%	8Hr, 24x7	8AM-5PM	Y	Y	Y
Iss-ora-devedms	B46	300	24x7	99.0%	8Hr, 24x7	8AM-5PM	Y	Y	Y
Jsc-iss-hvdi1	B46	300	24x7	99.0%	8Hr, 24x7	8AM-5PM	Y	Y	Y
Jsc-iss-hvdi2	B46	300	24x7	99.0%	8Hr, 24x7	8AM-5PM	Y	Y	Y

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Systems are in bold type with system elements listed below	Bldg. Location	Room	Performance Standards Principle Period Of Performance (PPP)	Performance Standards Minimum Availability (%)	Performance Standards Hardware Maximum Time to Service Time (i.e. 4 hours)	Operations Required, Shifts/Wk	S/W Release Support (Y/N)	User Support (Y/N)	ID/Account Mgmt (Y/N)
IPF for Integration/Test efforts									
ISS-CFF-I01 (CFF App)	B46	300	24x7	99.0%	8Hr, M-F	8AM-5PM	Y	Y	Y
Unity3	B46	300	24x7	99.0%	8Hr, M-F	8AM-5PM	Y	Y	Y
Unity4	B46	300	24x7	99.0%	8Hr, M-F	8AM-5PM	Y	Y	Y
Hale5	B46	300	24x7	99.0%	8Hr, 24x7	8AM-5PM	Y	Y	N
Hale6	B46	300	24x7	99.0%	8Hr, 24x7	8AM-5PM	Y	Y	N
Iditarod	B46	300	24x7	99.0%	24Hr, M-F	8AM-5PM	Y	N	Y
JSC-ISS-INT01 (Windows Web Server)	B46	300	24x7	99.0%	8Hr, M-F	8AM-5PM	Y	Y	Y
Storage Devices									
Iss-cab03 (Dev) (network attached storage)	B46	300	24x7	99.0%	4Hr, 24x7	8AM-5PM	Y	N	Y
iss-cab05 (prd) (network attached storage)	B46	300	24x7	99.0%	4Hr, 24x7	8AM-5PM	Y	N	Y
iss-cab04 (int) (network attached storage)	B46	300	24x7	99.0%	4Hr, 24x7	8AM-5PM	Y	N	Y
iss-cab06 (prd) (network attached storage)	B46	300	24x7	99.0%	4Hr, 24x7	8AM-5PM	Y	N	Y

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Systems are in bold type with system elements listed below	Bldg. Location	Room	Performance Standards Principle Period Of Performance (PPP)	Performance Standards Minimum Availability (%)	Performance Standards Hardware Maximum Time to Service Time (i.e. 4 hours)	Operations Required, Shifts/Wk	S/W Release Support (Y/N)	User Support (Y/N)	ID/Account Mgmt (Y/N)
Support to Institutional Systems									
goldprd	B46	300	N/A	N/A	N/A	8AM – 5PM	N	N	N
goldfst	B46	300	N/A	N/A	N/A	8AM – 5PM	N	N	N
JSC-ISS-LISCTX1	B46	300	N/A	N/A	N/A	8AM – 5PM	N	N	N
JSC-ISS-LISCTX2	B46	300	N/A	N/A	N/A	8AM – 5PM	N	N	N
JSC-ISS-LISCTX3	B46	300	N/A	N/A	N/A	8AM – 5PM	N	N	N
JSC-ISS-LISCTX4	B46	300	N/A	N/A	N/A	8AM – 5PM	N	N	N
JSC-ISS-LISFIL1	B46	300	N/A	N/A	N/A	8AM – 5PM	N	N	N
JSC-ISS-LISFIL2	B46	300	N/A	N/A	N/A	8AM – 5PM	N	N	N
hpsgprd	B46	300	N/A	N/A	N/A	8AM – 5PM	N	N	N
hpsgtst	B46	300	N/A	N/A	N/A	8AM – 5PM	N	N	N
Network Devices and Security									
Cisco 6513 Switch	B46	300	24X7	N/A	4Hr, 24x7	8am-5pm	Y	N	Y
Cisco 6509	B46	300	24X7	N/A	4 Hr, 24x7	8am-5pm	Y	N	Y
Cisco 3524 (qty 2)	B46	300	24X7	N/A	8Hr, M-F	8am-5pm	Y	N	Y
Cisco 3750	B46	300	24X7	N/A	8Hr, M-F	8am-5pm	Y	N	Y
Cisco 4912 (qty 3)	B46	300	24X7	N/A	8Hr, M-F	8am-5pm	Y	N	Y
Intrusion Detection System	B46	300	24X7	N/A	4Hr, 24x7	8am-5pm	Y	N	Y
Infinistream Forensic Analysis	B46	300	24X7	N/A	8Hr, M-F	8am-5pm	Y	N	Y
Network General Sniffer	B46	300	N/A	N/A	8Hr, M-F	8am-5pm	Y	N	Y

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Addendum 4 - LIST OF INSTALLATION-ACCOUNTABLE GOVERNMENT PROPERTY

The Government will provide the production and development environments including networks, hardware, system software, commercial-off-the-shelf (COTS) tools, databases and application software, and documentation available at contract award and depicted in the attached tables.

In addition, NASA's estimate of office space available (including computer workstations and other services listed in Section G, Clause G.5, NFS 1852.245-71, Installation-Accountable Government Property (SEPT 2007) Alternate I Deviation (SEPT 2007), for on-site Program Integration and Control contract personnel for the following building:

Building 4 South:

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List of Installation-Accountable Property and Services
Table 1 - COTS Software

Current Contractor *	Category	COTS Product	Version	Platform	Maintenance Type	Maintenance Expiration Date
PI&C	Application Software	Aspose	5.2.2	Windows		
PI&C	Administration Tools	Buzof	2	Windows		
PI&C	Administration Tools	HostID	na	Unix	none	OSS
PI&C	Administration Tools	Script Logic - Security Explorer	7.x	Windows	full	3/7/11
PI&C	Administration Tools	Scriptlogic SecureCopy	4.x	Windows	Full	12/2/11
PI&C	Administration Tools	Snare for IIS	1.2	Windows	NONE	OSS
PI&C	Administration Tools	Snare for Windows	2.5.3	Windows	NONE	OSS
PI&C	Administration Tools	Symantec Ghost Console	8	Windows		
PI&C	Administration Tools	TeraTermPro SSH	3.1.3	Windows		OSS
PI&C	Administration Tools	TreeSize Professional	5.0	Windows	full	1/10/11
PI&C	Administration Tools	WSUS	latest	Windows	NONE	Free
PI&C	Antivirus Tools	CLamAV	2.5	Unix		OSS
PI&C	Antivirus Tools	Cybersoft (Vfind)	1.75	Unix	full	3/1/11
PI&C	Antivirus Tools	Symantec Antivirus	10.1.6.6000			
PI&C	Antivirus Tools	Trend ServerProtect				
PI&C	Application Software	AdLib	5.8	Windows		
PI&C	Application Software		4.x	Windows	full	5/31/11
PI&C	Application Software	CafeSoft	2.1/3.1	Unix	full	9/30/11
PI&C	Application Software	Imagenation		Windows	NONE	NONE
PI&C	Application Software	Visual Mining NetCharts	4.x	Windows	full	5/31/11
PI&C	Application Software	Office Tracker Server	9.x	Windows	full	11/30/11
PI&C	Application Software	Quicksilver	2	Unix	full	12/31/11
PI&C	Application Software	RTM	2.3	Unix	none	unsupported
PI&C	Configuration Management	Cohesion	5	Windows	full	9/30/11
PI&C	Database Servers	MS SQL Server	2005-SP3	Windows		1/21/11
PI&C	DBMS Development Tools	Microsoft Access	7	Windows		
PI&C	DBMS Development Tools	Oracle Application Express	3.2.1	Unix	full	comes with db lic.
PI&C	DBMS Development Tools	Oracle Application Server	10.1.2.3	Unix	full	NOLA

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List of Installation-Accountable Property and Services
Table 1 - COTS Software

PI&C	DBMS Development Tools	Oracle Client Software	10.2.0.4	Unix	full	NOLA
PI&C	DBMS Development Tools	Oracle Developer Suite-Designer	10.1.2.3	Windows / Unix	full	NOLA
PI&C	DBMS Development Tools	Oracle EM Grid Control	10.2.0.5	Unix	full	NOLA
PI&C	DBMS Development Tools	Oracle Forms	10.1.2.3	Unix	full	NOLA
PI&C	DBMS Development Tools	Oracle RAC	10.2.0.4	Unix	full	NOLA
PI&C	DBMS Development Tools	Oracle RDBMS	10.2.0.4	Unix	full	NOLA
PI&C	DBMS Development Tools	Oracle Reports	6.0.8/10.1.2.3	Unix	full	NOLA
PI&C	DBMS Development Tools	Oracle Streams	10.2.0.4	Unix	full	comes with db lic.
PI&C	DBMS Development Tools	Oracle Workflow	2.6.4.0	Unix	full	comes with db lic.
PI&C	Desktop Tools	InterVideo DVD player	current	Windows	NONE	NONE
PI&C	Desktop Tools	Xwin32	9.1	Windows	full	Owned & renewed by NASA
PI&C	Licensing Software	Flex LM	8.4.8	Unix	full	
PI&C	Media Server	Helix Server Real Networks	11.1.8.4940	Windows	Full	
PI&C	Microsoft Developer Network Applications	MS Access	latest	Windows	NONE	NONE
PI&C	Microsoft Developer Network Applications	MS Visio	latest	Windows		
PI&C	Microsoft Developer Network Applications	MS Project	2007	Windows	Full	
PI&C	Microsoft Developer Network Applications	MS Publisher	latest	Windows		
PI&C	Microsoft Developer Network Applications	PhotoDraw	latest	Windows		
PI&C	Microsoft Developer Network Applications	Visual J++	latest			
PI&C	NetApp Connectivity	MS iSCSI	latest	Windows	MS	NONE

List of Installation-Accountable Property and Services
Table 1 - COTS Software

PI&C	Network Monitor Tool	MRTG	4.x	Unix		OSS
PI&C	Network Monitor Tool	Solarwinds Cirrus CM	V5 DL50	Windows	full	8/20/11
PI&C	Network Monitor Tool	Solarwinds Network Engineers	9.2	Windows	full	8/20/11
PI&C	Network OS	Cisco IDS ISDM2	7.0.1	Cisco Unix	full	9/30/11
PI&C	Network OS	Cisco IOS	12.1(26)E8	Cisco 6500	Full	9/30/11
PI&C	Network Tool	Cisco Network Assistant	5.3	Windows	full	9/30/11
PI&C	Network Tool	NG Sniffer	4.70.182	Windows	full	7/31/11
PI&C	Network Tool	Sam Spade	1.14	Windows	None	OSS
PI&C	Operational/Development Support Tools	Cronolog	1.6.2	Unix	none	OSS
PI&C	Operational/Development Support Tools	Diff Utilities	2.1	Unix		OSS
PI&C	Operational/Development Support Tools	GNU Zip, Unzip	1.2.4	Unix		OSS
PI&C	Operational/Development Support Tools	Jpeg	6b	Unix		OSS
PI&C	Operational/Development Support Tools	Xemacros	19.14	Unix		Freeware
PI&C	Programming Library	MS .NET	2.0	Windows		MS
PI&C	Programming Tools	GNU C++	3.4.2, 4.0.2	Unix		OSS
PI&C	Programming Tools	GNU Debugger	4.16	Unix		OSS
PI&C	Programming Tools	GNU Make	3.74	Unix		OSS
PI&C	Programming Tools	GNU Plot	4.0.0	Unix	none	OSS
PI&C	Programming Tools	Perl	5.8	Unix & Windows		OSS
PI&C	Programming Tools	RCS	5.7	Unix		OSS
PI&C	Programming Tools	Subversion VisualSVN	2.x	Windows	Full	
PI&C	Security Tools	CiscoIPS Manager	7.0.1	Windows	Full	9/30/11

PROGRAM INTEGRATION AND CONTROL

List of Installation-Accountable Property and Services

Table 1 - COTS Software

PI&C	Security Tools	SecureRDP	3.2.2	Windows	None	OSS
PI&C	Security Tools	Syslog-ng	1.6.11	Unix	none	OSS
PI&C	Security/Network Tool	NG Sniffer Infinistream	4.2	Windows	full	7/31/11
PI&C	Server Management	Dell Open Manage Server Administrator	4.5 +	Windows	NONE	Dell
PI&C	Server OS	Windows 2003	latest	Windows	NONE	
PI&C	Server OS	Windows 2003 Enterprise	latest	Windows	NONE	
PI&C	Server OS	Windows 2008 standard, enterprise				
PI&C	Server OS	Windows 2008 R2 Datacenter				
PI&C	System Tools	BlueScale	10.5.0-20081121F	Spectra Logic	full	
PI&C	System Tools	NetApp Data OnTap	7.3.1	NetApp Filer	Full	NetApp
PI&C	System Tools	Solaris	10	Unix	full	9/30/11
PI&C	System Tools	TeamQuest Suite	10.2	Unix and Windows	full	12/31/11
PI&C	System Tools	Veritas Netbackup	6.5.5	Unix	full	9/30/11
PI&C	Web Development/Deployment Tools	Analog Log analyzer	6.0	Unix	none	OSS
PI&C	Web Development/Deployment Tools	Apache Tomcat	6.x			
PI&C	Web Development/Deployment Tools	Apache Web Server	2.0.55	Unix		OSS
PI&C	Web Development/Deployment Tools	Coldfusion MX	8	Unix	full	
PI&C	Web Development/Deployment Tools	HP Quality Center	10	Unix	full	2/26/11
PI&C	Web Development/Deployment Tools	IIS	6	Windows		

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PROGRAM INTEGRATION AND CONTROL

List of Installation-Accountable Property and Services
Table 1 - COTS Software

PI&C	Web Development/Deployment Tools	J Builder	Latest			
PI&C	Web Development/Deployment Tools	Java Development Toolkit	1.6	All		OSS
PI&C	Web Development/Deployment Tools	Adobe Contribute	3.x	Windows		5/7/11
PI&C	Web Development/Deployment Tools	Adobe Dreamweaver	CS3	Windows		
PI&C	Web Development/Deployment Tools	Adobe Flash	4	Windows		
PI&C	Web Development/Deployment Tools	Adobe Flex		Windows		
PI&C	Web Development/Deployment Tools	PHP	5.0.5	Unix	none	OSS
PI&C	Web Development/Deployment Tools	Thawte Code Signing	-	-	full	2/2/11
PI&C	Web Development/Deployment Tools	Thawte SSL Web Server	-	-	full	2/2/14
PI&C	Web Development/Deployment Tools	Urechin	6.6	Windows	full	5/9/11
PI&C	Web Development/Deployment Tools	Visual Café For JAVA	3.0			
PI&C	Windows Support Tools	MSDN Operating Systems	latest	Windows		
PI&C	Documentum	ADVANCED DOCUMENT TRANSFORMATION SERVICES CPU		Windows	full	9/30/11
PI&C	Documentum	AUTHORING INTEGRATION SERVICES CORE		Windows	full	9/30/11
PI&C	Documentum	CONTENT SERVER ST		Windows	full	9/30/11
PI&C	Documentum	DISCOVERY MANAGER ST		Windows	full	9/30/11
PI&C	Documentum	DOCUMENTUM IMPORT MANAGER ST		Windows	full	9/30/11
PI&C	Documentum	DOCUMENTUM ADMINISTRATOR ST		Windows	full	9/30/11
PI&C	Documentum	DOCUMENTUM DEVELOPER STUDIO ST		Windows	full	9/30/11

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PROGRAM INTEGRATION AND CONTROL

List of Installation-Accountable Property and Services
Table 1 - COTS Software

PI&C	Documentum	ECI 3 ADAPTER PACK		Windows	full	9/30/11
PI&C	Documentum	FEDERATED SEARCH SDK		Windows	full	9/30/11
PI&C	Documentum	FEDERATED SEARCH SDK		Windows	full	9/30/11
PI&C	Documentum	FEDERATED SEARCH SERVER		Windows	full	9/30/11
PI&C	Documentum	READ-ONLY ST		Windows	full	9/30/11
PI&C	Documentum	REPORTING SERVICES INST		Windows	full	9/30/11
PI&C	Documentum	TRUSTED CONTENT SERVICES CORE		Windows	full	9/30/11
PI&C	Documentum	WEBTOP CLIENT ST		Windows	full	9/30/11
PI&C	Documentum	WEBTOP EXTENDED SEARCH - ST		Windows	full	9/30/11
PI&C	Documentum	CYA		Windows	Full	9/30/11

* For RFP use only

PROGRAM INTEGRATION AND CONTROL

Addendum 4 - List of Installation-Accountable Property and Services

Table 2 - ISS Prescribed Applications

Current Contractor	Application Name	Acronym	Size of Effort	Complexity	DBMS	Development Language or COTS Dependencies	OS	# of Users
PI&C	Application Support Data Base (Common Applications Utilities - CAU)	ASDB	Small	Small	Oracle	Java, Cold Fusion, JavaScript, Oracle PL/SQL	Solaris	70
PI&C	Common Filter Facility (CAU)	CFF	Small	Medium	N/A	Java, Cold Fusion, JavaScript, Oracle PL/SQL, Perl, cgi	Windows/Solaris	1813
PI&C	Common Java Utility (CAU) ¹	CJU	Small	Medium	N/A	Java, Cold Fusion, JavaScript, Oracle PL/SQL	Solaris	1825
PI&C	Shopping Cart Utility (CAU) ²	SCU	Small	Small	N/A	Java, Cold Fusion, JavaScript, Oracle PL/SQL, cgi	Solaris	12
PI&C	UserID Provisioning Tool	UPT	Medium	Medium	Oracle	Adobe Flex, ColdFusion PL/SQL	Solaris	25
PI&C	Common Schedules Database	CSD	Medium	Large	Artemis	N/A	MVS	100
PI&C	COSMOS	COSMOS	Medium	Medium	Oracle	Cold Fusion/ColdFusion Reports, Oracle PL/SQL	Windows	400
PI&C	Integrated Risk Management Application	IRMA	Medium	Medium	SQL Server	.Net, Netcharts, Aspose, JavaScript	Windows	675
PI&C	Action Tracking Application	ATA	Small	Small	Oracle	Oracle Forms 10G, Oracle Reports 6i, Oracle PL/SQL	Solaris	110

¹ Hosting only

² Hosting only

PROGRAM INTEGRATION AND CONTROL

Current Contractor	Application Name	Acronym	Size of Effort	Complexity	DBMS	Development Language or COTS Dependencies	OS	# of Users
PI&C	Correspondence Tracking System	CTS	Small	Small	Oracle	Oracle Forms 10G, Oracle Reports 6i, Oracle PL/SQL, Perl, cgi	Solaris	30
PI&C	ORU Data Dictionary	ORUDD	Small	Small	Oracle	Java, JavaScript, Oracle PL/SQL	Solaris	320
PI&C	Support Applications for NASA MIS	SANMIS	Medium	Medium	Oracle	Java, Oracle Forms 10G, Oracle-PL/SQL	Solaris	150
PI&C	Design – Knowledge Capture	DKC	Small	Small	Oracle	Real Player	Windows, Solaris	250
PI&C	Hardware History Retrieval System	HHR	Small	Medium	Oracle	Oracle OAS, Oracle, Oracle PL/SQL, Java	Solaris	700
PI&C	Electronic Document Management System	EDMS	High	High	Oracle	Documentum, Oracle, Crystal Reports, FAST	Windows	5000
PI&C	ISS Web Sites & Pages		High	Medium	N/A	HTML, Cold Fusion, Perl, Dream Weaver, Contribute, PHP, JavaScript	Solaris, Windows	
PI&C	Restricted Access ISS Websites		High	Medium	N/A	HTML, Cold Fusion, Perl, Dream Weaver, Contribute, PHP, JavaScript	Solaris, Windows	650
PI&C	Vehicle Master Data Base ³	VMDB	High	High	Oracle	Java, Oracle Forms 6i, Oracle Reports 6i, Oracle PL/SQL, APEX	Solaris	2300
PI&C	Mission Integration Database Application System ⁴	MIDAS	High	High	Oracle	Java, Oracle Forms 10G, Oracle Reports 10G, Oracle PL/SQL	Solaris	320
PI&C	Bulletin Board Posting Tool	BBPT	Medium	Medium	Oracle	Java, Cold Fusion, Perl, Javascript, cgi	Solaris	270
PI&C	Agenda Calendar Tool (BBPT)	ACT	Small	Medium	Oracle	Cold Fusion, Perl, Javascript, cgi	Solaris	80

³ Hosting & Account Management only

⁴ Hosting & Account Management only

PROGRAM INTEGRATION AND CONTROL

Current Contractor	Application Name	Acronym	Size of Effort	Complexity	DBMS	Development Language or COTS Dependencies	OS	# of Users/ids
PI&C	International Travel Database ⁵	ITD	Small	Small	Oracle		Solaris	50
PI&C	ISS Program Scientist Toolkit ⁶	ISSPST	Small	Small	Oracle		Solaris	40
PI&C	Operations and Maintenance Requirements and Specifications Database	OMRSD	Small	Medium	Oracle	Coldfusion, FLEX	Solaris	20

⁵ Hosting & Account Mgmt only

⁶ Hosting & Account Mgmt only

PROGRAM INTEGRATION AND CONTROL
List of Installation-Accountable Property and Services
 Table 3 - COTS Hardware Tables

COMMON HARDWARE

Addendum 4 - List of Installation-Accountable Property and Services

Table 4 - ISS PRODUCTION FACILITY

Manufa cturer	model	NEMS	serial number	Item Type	Host name	Rack Location	PDU	Notes	Acct Supt	Env	Maint/ Availability Type	Maint Exp
SUN	Blade 150	2139645	FT33320124	system	issprtd2	B46/300 3da13	3pdu7 3pdu5		N	Inf	Silver	9/30/11
SUN	Blade 150	2139655	FT33320223	System					N	Inf	None	
SUN	Blade 150	2139656	FT33320162	System	-	B46/300 3dg30	-	Powered off	N	Inf	None	
SUN	Blade 150	2139658	FT33320160	System	issprti12	B46/300 3da13	Off	Powered off	N	Inf	None	
SUN	Blade 150	2223800	FT33320215	System	-			Powered off	N	Inf	None	
SUN	Blade 150	2140503	FT34650163	System	iss-ftp-p01	B46/300 3bx14	3pdu12		Y	Prd	Silver	9/30/11
SUN	Ultra-45	2148681	0619FC5029	System	Iss01u	B30a 1084a	n/a		N	Inf	Silver	9/30/11
SUN	Ultra-45	2148682	0619FC502C	System	-	B46/300 3da17	3pdu10	Hold for use	N	Inf	Silver	9/30/11
SUN	Ultra-45	2148683	0619FC502F	System	Sc1-aws	B46/300 3dn27	3pdu10		N	Inf	Silver	9/30/11
SUN	Ultra-45	2148684	0619FC502S	System	Sc3-aws	B46/300 3dg30	3pdu10		N	Inf	Silver	9/30/11
SUN	Ultra-45	2148685	0619FC100M	System	Ruthere	B46/300 3da07	3pdu10		Y	Prd	Silver	9/30/11
SUN	Ultra-45	2148686	0619FC502R	System	agent86	B46/300 3dc14	3pdu5 3pdu6		N	Inf	Silver	9/30/11
SUN	Ultra-45	2148687	0619FC5026	System	Sc2-aws	B46/300 3dj32	3pdu5				Silver	9/30/11
SUN	RACK,	2139741	NONE	Rack							None	

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PROGRAM INTEGRATION AND CONTROL

Manufa cturer	model	NEMS	serial number	Item Type	Host name	Rack Location	PDU	Notes	Acct Supt	Env	Maint/ Availability Type	Maint Exp
SUN	T2000	2512774	0548NNNNORL	System	iditarod	B46/300 3dj28	3pdu3 3pdu10		N	Int	Silver	9/30/11
SUN	T2000	2512775	0548NNNNOMS	System	denali	B46/300 3dj28	3pdu3 3pdu10		N	Dev	Silver	9/30/11
SUN	T2000	2512776	0548NNNN13A	System	nome	B46/300 3dj28	3pdu3 3pdu10		N	Prd	Silver	9/30/11
SUN	T1000	2524959	0724NNEOYC	System	restoreit1	B46/300 3dj27	3pdu7 3pdu8		Y	Dev	Silver	1/1/11
SUN	T1000	2524960	0724NNEONJ	System	restoreit2	B46/300 3dj27	3pdu7 3pdu8		Y	Dev	Silver	1/1/11
SUN	SUNBLADE 2000	2139770	333AD2290	System	isrtm01	B46/300 3dj30	3pdu5		Y	Prd	Gold	9/30/11
SUN	SUNBLADE 2000	2140361	335AD29D8	System	eureka1	B46/300 3dj30	3pdu5		N	Inf	Silver	9/30/11
SUN	SUNBLADE 2000	2139733	321AD2358	System	oracon	B46/300 3dj30	3pdu5		N	Inf	Silver	9/30/11
SUN	SUNFIRE V210	2512513	FM43610014	System	iss-pob-p01	B46/300 3dj28	3pdu10 3pdu6		N	Inf	Gold	9/30/11
SUN	SUNFIRE V240	1653653	HN33339983	System	kepler2	B46/300 3dj28	3pdu3 3pdu10		N	Prd	Gold	9/30/11
SUN	SUNFIRE V240	1653654	HN33339992	System	kepler1	B46/300 3dj28	3pdu3 3pdu10		N	Prd	Gold	9/30/11
SUN	SUNFIRE V240	1653655	HN33339993	System	iss-dir-p01	B46/300 3dj28	3pdu3 3pdu10		Y	Prd	Gold	9/30/11
SUN	SUNFIRE V240	1653743	HN33612001	System	iss-dir-p02	B46/300 3dj28	3pdu3 3pdu10		Y	Prd	Gold	9/30/11
SUN	SUNFIRE V240	1653744	HN33612000	System	oort	B46/300 3dj28	3pdu3 3pdu10		N	Dev	Silver	9/30/11
SUN	SUNFIRE V240	1653745	HN33612005	System	ditapp02	B46/300 3dj28	3pdu3 3pdu10		Y	Prd	Gold	9/30/11
SUN	SUNFIRE V440	2522096	0524AD8025	System	unity3	B46/300 3dj29	3pdu8 3pdu7		Y	Int	Silver	9/30/11
SUN	SUNFIRE V440	2522097	0524AD8065	System	liberty3	B46/300 3dj29	3pdu8 3pdu7		Y	Prd	Gold	9/30/11
SUN	SUNFIRE V440	2522098	0523AD82F3	System	destiny3	B46/300 3dj29	3pdu8 3pdu7		Y	Dev	Silver	9/30/11

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PROGRAM INTEGRATION AND CONTROL

Manufa cturer	model	NEMS	serial number	Item Type	Host name	Rack Location	PDU	Notes	Acct Supt	Env	Maint/ Availability Type	Maint Exp
SUN	SUNFIRE V440	2522099	0523AD8047	System	liberty4	B46/300 3dj29	3pdu8 3pdu7		Y	Prd	Gold	9/30/11
SUN	SUNFIRE V440	2522100	0522AD826B	System	unity4	B46/300 3dj29	3pdu8 3pdu7		Y	Int	Silver	9/30/11
SUN	SUNFIRE V440	2522101	0523AD8271	System	destiny4	B46/300 3dj29	3pdu8 3pdu7		Y	Dev	Silver	9/30/11
SUN	SUNFIRE V440	2522095	0532AD8071	System	blade193 (bkupsrv)	B46/300 3dj29	3pdu8 3pdu7		N	Inf	Gold	9/30/11
SUN	V880	2154451	229V0208	System	hale6	B46/300 3dg31	3pdu5 3pdu6 3pdu10		Y	Int	Silver	9/30/11
SUN	SUNFIRE V880	2084398	S234V02AD	System	Hale1	B46/300 3dg28	3pdu5 3pdu6 3pdu10		Y	prd	Gold	9/30/11
SUN	SUNFIRE V880	2084399	S235V006E	System	Hale2	B46/300 3dg29	3pdu5 3pdu6 3pdu10		Y	Prd	Silver	9/30/11
SUN	SUNFIRE V880	2140243	0336AM006D	System	hale3	B46/300 3dg26	3pdu5 3pdu6 3pdu10		Y	dev	Silver	9/30/11
SUN	SUNFIRE V880	2140244	0335AM01DB	System	hale4	B46/300 3dg25	3pdu5 3pdu6 3pdu10		Y	dev	Silver	9/30/11
SUN	SUNFIRE V880	2140283	0333AM0241	System	hale5	B46/300 3dg30	3pdu5 3pdu6 3pdu10		Y	Int	Silver	9/30/11
SUN	TERMINAL CONCENTRA TOR	1997155	MIC0051488		N/A						None	
Sun	5140	2512096	BEL08322178	System	macbeth	B46/300 3dj27	3pdu7 3pdu8				Silver	9/30/13
Sun	5140	2512095	BEL083332P	system	lss-ora- edms-d	B46/300 3dj27	3pdu7 3pdu8				Gold	9/30/13
Sun	5140	2570288	FML102604M	System	lss-ora- edms	B46/300 3dj27	3pdu7 3pdu8	Purchased for production			Gold	7/27/11
DELL	IMU	1607834	G035J31		N/A						None	
DELL	PE 1650	1607835	F035J31	System	None	B46 R300		Test box			None	

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PROGRAM INTEGRATION AND CONTROL

Manufa- cturer	model	NEMS	serial number	Item Type	Host name	Rack Location	PDU	Notes	Acct Supt	Env	Maint/ Availability Type	Maint Exp
DELL	2450	1617395	G4PPH01	system	jsc-iss- srv1	B46/300 3DC08	3PDU3 3PDU8	Off, to be excessed			None	
DELL	PE 6450	1996939	82KBB01	System	JSC-ISS- SRV5	B46 R300 3dc08	3pdu3 3pdu8	Test cluster server			None	
DELL	PE 6450	1996940	B2KBB01	System	JSC-ISS- SRV3	B46 R300 3DC08	3pdu3 3pdu8	Test cluster server			None	
DELL	1702FP	2078000	MX08G152476051	Monitor	N/A	B46 R300 3DC08					None	
DELL	WHL	2140433	ACAE38		N/A						None	
DELL	WHL	2140434	HSP2J31		N/A						None	
DELL	RACK KVM	2143464	1TP2J31		N/A						None	
DELL	PE 6600	2143505	4QVSM51	System	N/A	3DD26		Test EDMS			None	
DELL	PE 700	2145540	86WQV51	System	JS-ISS-SAO	B46 R300 3dc13	3pdu7 3pdu5	Test IIS	y	Dev	None	
DELL	PE 700	2145541	96WQV51	System	JS-ISS-IIS01	B46 R300 3dd26	3pdu7 3pdu5		y	Int	None	
DELL	PE 700	2145542	B6WQV51	System	jsc-issint01	B46 R300 3dd26	3pdu7 3pdu5	OfficeTracker Server	y	Prd	None	
DELL	PE 700	2145543	C6WQV51	System	iss- termsrv1	B46 R300 3da15	3pdu7 3pdu5		y	Prd	None	
DELL	GX620 Optiplex	2148621	44PY3B1	System	Smith-Guy	B30A R1084b	n/a		n	Inf	None	
DELL	GX620 Optiplex	2148623	D4PY3B1	System	ISS-B46-ws	B46/300 3da12	3PDU10		n	Inf	None	
DELL	PE 1750	2512598	FVY2P51	System	Jsc-iss-prta	B46 R300 3dd26	3pdu7 3pdu10		y	Prd	None	
DELL	PE 700	2512641	DMSSP51	System	iss-cff-i01	B46 R300 3dd26	3pdu5 3pdu7		n	Int	None	
DELL	PE 2850	2512833	4RF0HB1	System	jsc-iss-prtb	B46 R300 3dd26	3pdu7 3pdu10				NBD	
DELL	PE 2850	2512834	FQF0HB1	System	iss-sao	B46 R300 3dc07	3pdu7 3pdu5				NBD	

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PROGRAM INTEGRATION AND CONTROL

Manufa cturer	model	NEMS	serial number	Item Type	Host name	Rack Location	PDU	Notes	Acct Supt	Env	Maint/ Availability Type	Maint Exp
DELL	PE 1850	2522191	1ML6B81	System	jsc-iss-01	B46 R300 3dc10	3pdu7 3pdu10				None	
DELL	PE 1850	2522192	8ML6B81	System	iss-aff-p02	B46 R300 3dc10	3pdu7 3pdu10		y	Prd	None	
DELL	RACK KVM	2522338	CC-0G6325-12963- 56F		N/A	B46 R300 3dc07					None	
DELL	PE 1850	2522382	BML6B81	System	iss-cw	B46 R300 3dc10	3pdu7 3pdu10	Off, to be excessed	n	Inf	None	
DELL	PE 1850	2522383	44M6B81	System	iss-cff-d01	B46 R300 3dc10	3pdu7 3pdu10		y	Dev	None	
DELL	PE 1850	2522384	74M6B81	System	iss-cff-p01	B46 R300 3dc10	3pdu7 3pdu10		y	Prd	None	
DELL	PE 1850	2522385	84M6B81	System	jsc-issdev01	B46 R300 3dc10	3pdu7 3pdu10		y	Dev	None	
DELL	PE 1850	2522386	C4M6B81	System	jsc-issprd01	B46 R300 3dc10	3pdu7 3pdu10		y	Prd	None	
DELL	PE 1850	2522940	82N3K81	System	iss- cohesion	B46 R300 3dc10	3pdu7 3pdu10		n	Inf	None	
DELL	PE 2950	2523835	7F470C1	System	Jsc-iss-hv	B46 R300 3dc07	3pdu7 3pdu5				Silver	10/23/11
DELL	PE 2950	2523954	CCPJNC1	System	JSS-ISS- SQLDI	B46 R300 3dc07	3pdu7 3pdu5		y	Dev	NBD	3/7/12
DELL	PE 2950	2523955	409KNC1	System	JS-ISS-SRV4	B46 R300 3dc07	3pdu7 3pdu5				Silver	3/7/12
DELL	PE 2950	2523956	709KNC1	System	JS-ISS- KIBO5	B46 R300 3dc07	3pdu7 3pdu5		y	Prd	Silver	3/7/12
DELL	PE 2950	2523957	45RJNC1	System	JS-ISS-SQLP	B46 R300 3dc07	3pdu7 3pdu5		y	Prd	Silver	3/7/12
DELL	PE 2950	2523958	509KNC1	System	JS-ISS- KIBO4	B46 R300 3dc07	3pdu7 3pdu5		y	Prd	NBD	3/7/12
DELL	R710	2569022	9R863M1	System	JSC-ISS- HVDI1	B46 R300 3dc07	3pdu7 3pdu5				4HR	2/18/15
DELL	R710	2569023	BR863M1	System	JSC-ISS- HVDI2	B46 R300 3dc07	3pdu7 3pdu5				4HR	2/18/15

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Manufa cturer	model	NEMS	serial number	Item Type	Host name	Rack Location	PDU	Notes	Acct Supt	Env	Maint/ Availability Type	Maint Exp
DELL	R710	2569024	CR863M1	System	JSC-ISS- HVPRD1	B46 R300 3dc07	3pdu7 3pdu5				4HR	2/18/15
DELL	R710	2569025	DR863M1	System	JSC-ISS- HVPRD2	B46 R300 3dc07	3pdu7 3pdu5				4HR	2/18/15
SONY	SDM593	2224175	SDM593	monitor	n/a	B30A R1084					None	
SONY	SDMS	2145557	SDMS	Monitor	n/a	B30A R1084					None	
SONY	SMD-S81R	2139659	SMD-S81R	Monitor	n/a	B30A R1080A					None	
SONY	SMD-S81R	2139660	SMD-S81R	Monitor	n/a	B30A R1080A					None	
SONY	SMD-S81R	2139662	SMD-S81R	Monitor	n/a	B30A R1080A					None	
SONY	SMD-S81R	2139669	SMD-S81R	Monitor	n/a	B30A R1080A					None	
SONY	SMD-S81R	2139670	SMD-S81R	Monitor	n/a	B30A R1080A					None	
SONY	SMD-S81R	2139674	SMD-S81R	Monitor	n/a	B30A R1080A					None	
SONY	SMD-S81R	2148811	SMD-S81R	Monitor	n/a	B46 R300					None	
					Iss- edmscont nt	B46/300 3dc06	3PDU5 3PDU6				GOLD	5/27/15
Dell	R710	2570170	BHSGSL1	system	iss-edmsidx	B46/300 3dc06	3PDU5 3PDU6				GOLD	5/27/15
Dell	R710	2570168	BHMFSL1	System	iss- edmsweb	B46/300 3dc06	3PDU5 3PDU6		yes		GOLD	5/27/15
Dell	R710	2570169	BHLFSL1	System	ISS- EDMSADTS	B46/300 3dc06	3PDU5 3PDU6				GOLD	5/27/15
Dell	R710	2570167	BHLDSL1	System								

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Manufa cturer	model	NEMS	serial number	Item Type	Host name	Rack Location	PDU	Notes	Acct Supt	Env	Maint/ Availability Type	Maint Exp
Dell	R710	2570171	BHMDSL1	System	ISS- EDMSEICIS	B46/300 3dc06	3PDU5 3PDU6				GOLD	5/27/15
Dell	Rack KVM	2283625	CN-08HJ9G3- 12963	Rack KVM	N/A	B46/300 3dc06					GOLD	5/27/15
HP	DL365 G5	2511788	MXQ825A0SA	System	ISS- edmstest1	B46/300 3dc05	3PDU5 3PDU6		yes	Test	7x24	8/5/11
HP	DL365 G5	2511789	MXQ823A1VA	System	ISS- edmstest3	B46/300 3dc05	3PDU5 3PDU6			Test	NBD	8/5/11
HP	DL385 G5	2260714	2UX82503EG	System	ISS- edmstest2	B46/300 3dc05	3PDU5 3PDU6			Test	NBD	8/5/11
HP	DL385 G5	2260715	2UX833041P	System		B46/300 3dc05	3PDU5 3PDU6				NBD	8/5/11
HP	DL385 G5	2260716	2UX82503G5	System	ISS- edmsdev1	B46/300 3dc05	3PDU5 3PDU6		yes	Dev	7x24	8/5/11
HP	DL385 G5	2260717	2UX82503G3	System	ISS- edmsint1	B46/300 3dc05	3PDU5 3PDU6		yes	Int	7x24	8/5/11
HP	DL385 G5	2260718	2UX8260167	System	ISS- edmsint3	B46/300 3dc05	3PDU5 3PDU6			Int	7x24	8/5/11
HP	DL385 G5	2260719	2UX826014W	System	ISS- edmsdev3	B46/300 3dc05	3PDU5 3PDU6			Dev	7x24	8/5/11
HP	DL585 G5	2260720	USE825N57K	System	ISS- edmsdev2	B46/300 3dc05	3PDU5 3PDU6			Dev	NBD	8/5/11
HP	DL585 G5	2260721	USE825N57M	System	ISS- edmsint2	B46/300 3dc05	3PDU5 3PDU6			Int	NBD	8/5/11

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PROGRAM INTEGRATION AND CONTROL

Addendum 4 - List of Installation-Accountable Property and Services

Table 5 - ISS PRODUCT FACILITY PERIPHERALS

Peripheral Manufacturer	Model #	NEMS	Serial	Rack location	PDU	Parent Host (s)	Notes	Maintenance Type	Maintenance Expiration Date
HP	C3167A	1450926	USCC003818			N/A	LASER JET 5 SI MX	None	
HP	C4087A	1921624	USB805242			N/A	LASER JET 8000 DN	None	
GARDNER & ASSOCIATES	HD-3	2226351	2007-0037-HD3			N/A	DEGAUSSER	None	
NETAPP	DS14	1617686	SHU4451500078C9	B46/300 3DF28	3PDU3 3PDU7		DISK STORAGE UNIT	gold	8/31/11
NETAPP	DS14	1617687	SHU4451500079F8	B46/300 3DF28	3PDU3 3PDU7		DISK STORAGE UNIT	gold	8/31/11
NETAPP	DS14	1617688	SHU4451500079F3	B46/300 3DF28	3PDU3 3PDU7		DISK STORAGE UNIT	gold	8/31/11
NETAPP	DS14	2521682	NA00000000353975	B46/300 3DF28	3PDU3 3PDU7		DISK STORAGE UNIT	gold	8/31/11
NETAPP	DS14	2521683	NA00000000353974	B46/300 3DF28	3PDU3 3PDU7		DISK STORAGE UNIT	gold	8/31/11
NETAPP	DS14MK2	2524406	NA00000000415097	B46/300 3DF28	3PDU3 3PDU7		STORAGE SHELF	gold	8/31/11
NETAPP	NAC-0501	2260315	NONE	B46/300 3DF28	3PDU3 3PDU7		STORAGE UNIT	gold	8/31/11
NETAPP	X871AC	2148396	NAS11600018TGO	B46/300 3DF28	3PDU3 3PDU7		STORAGE EQUIPMENT CABINET	gold	8/31/11
NETAPP	X861A	2084557	NONE	B46/300 3DF28	3PDU3 3PDU7		RACK, WORKSTATION	gold	8/31/11

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Peripheral Manufacturer	Model #	NEMS	Serial	Rack location	PDU	Parent Host (s)	Notes	Maintenance Type	Maintenance Expiration Date
NETSCOUT	E2GB	2155438	SE2G80111				NETWORK SNIFFER	gold	7/31/11
NETSCOUT	EG2S	2146379	38207000203P	B46/300 3DC12	3PDU7 3PDU10		NETWORK SNIFFER	gold	7/31/11
NETSCOUT	INFINISTREA M11620	2566855	27507019848P	B46/300 3DC12	3PDU7 3PDU10		COMPUTER	gold	7/31/11
BAY NETWORK	AXM-D8S173	1922614	M1COO16173			N/A	TERMINAL CONCENTRATOR	None	
BAY NETWORK	AXM-D8S173	1922615	M1C0015995			N/A	TERMINAL CONCENTRATOR	None	
BAY NETWORK	AXM-D8S173	1922616	M1C0016095			N/A	TERMINAL CONCENTRATOR	None	
CISCO	4912G	1617169	FOX0803048R	B46/300 3di29	3pdu8 3pdu7	N/A	CHASSIS, CATALYST	gold	9/30/11
CISCO	6500 SERIES	2085979	TBM06391464	B46/300 3dc11	3PDU5 3PDU10	N/A	CHASSIS, CATALYST	gold	9/30/11
CISCO	CATALYST 6500 SERIES	2140393	SAL0727FYU4	B46/300 3dc12	3PDU7 3PDU10	N/A	CHASSIS, CATALYST	gold	9/30/11
CISCO	WS-C3750G- 24T-E	1653785	CNMV600CRA			N/A	SWITCH, CATALYST	gold	9/30/11
CISCO	WS-C4912G SERIES	1652339	FOX04262378			N/A	ETHERNET SWITCH	gold	9/30/11
CISCO	WS-C4912G SERIES	1652340	FOX06180098	B46/300 3di29	3pdu8 3pdu7	N/A	ETHERNET SWITCH	gold	9/30/11
CISCO	WS-X6416- GBIC	1617168	CNS7SCSAAB			N/A	CHASSIS, CATALYST	gold	9/30/11
F5 NETWORKS INC	B-IP LTM 1500 2G	2524436	BIP230122S	B46/300 3DC12	3PDU7 3PDU10	N/A	SWITCHER, LTM	gold	9/30/11
F5 NETWORKS INC	B-IP LTM 1500 2G	2524437	BIP225288S	B46/300 3DC12	3PDU7 3PDU10	N/A	SWITCHER, LTM	gold	9/30/11
F5 NETWORKS	B-IP LTM 1500	2524443	BIP225746S	B46/300	3PDU10	N/A	SWITCHER, LTM	gold	9/30/11

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PROGRAM INTEGRATION AND CONTROL

Peripheral Manufacturer	Model #	NEMS	Serial	Rack location	PDU	Parent Host (s)	Notes	Maintenance Type	Maintenance Expiration Date
INC	2G			3Dc11	3PDU5				
F5 NETWORKS INC	B-IP LTM 1500 2G	2524444	BIP226101S	B46/300 3Dc11	3PDU10 3PDU5	N/A	SWITCHER, LTM	gold	9/30/11
FLUKE CORP	DTX-1800	2512715	9149095			N/A	ANALYZER, CABLE	gold	9/30/11
SPECTRA LOGIC	LIBRARY, AUTOMATED TAPE	2155591	651401		3pdu7, 8	N/A	SPECTRA T950	gold	1/31/11
APPLE INC	XRAID	3027107	QP6260W6SA		off	N/A	QP6260W6SAH	None	

PROGRAM INTEGRATION AND CONTROL

Addendum 4 - List of Installation-Accountable Property and Services**Table 6 - ISS PROGRAM LOAN POOL**

MANUFACTURER	MODEL	SERIAL	DESCRIPTION	PROPERTY TAG	BLDG	ROOM	MAINT TYPE	Warranty/ Maint Expiration
HP	NC6120	CNU5351XG2	COMPUTER, LAPTOP	1618533	4S	3403	N/A	N/A
HP	NC6120	CNU5351WJK	COMPUTER, LAPTOP	1618534	4S	3403	N/A	N/A
HP	NC6120	CNU5351X2G	COMPUTER, LAPTOP	1618535	4S	3403	N/A	N/A
HP	NC6120	CNU5351X9V	COMPUTER, LAPTOP	1618536	4S	3403	N/A	N/A
HP	NC6120	CNU5351WY0	COMPUTER, LAPTOP	1618538	4S	3403	N/A	N/A
HP	NC6120	CNU5351XBM	COMPUTER, LAPTOP	1618540	4S	3403	N/A	N/A
HP	NC6120	CNU5351X7H	COMPUTER, LAPTOP	1618541	4S	3403	N/A	N/A
HP	NC6120	CNU5351X9H	COMPUTER, LAPTOP	1618542	4S	3403	N/A	N/A
HP	NC6120	CNU5351XB9	COMPUTER, LAPTOP	1618544	4S	3403	N/A	N/A
HP	NC6120	CNU5351VXJ	COMPUTER, LAPTOP	1618547	4S	3403	N/A	N/A
HP	NC6120	CNU5351WN4	COMPUTER, LAPTOP	1618548	4S	3403	N/A	N/A
HP	NC6120	CNU5351VZL	COMPUTER, LAPTOP	1618550	4S	3403	N/A	N/A
HP	NC6120	CNU5351XG8	COMPUTER, LAPTOP	1618551	4S	3403	N/A	N/A
HP	NC6120	CNU5351X33	COMPUTER, LAPTOP	1618526	4S	3403	N/A	N/A
HP	NC6120	CNU5351X36	COMPUTER, LAPTOP	1618554	4S	3403	N/A	N/A
HP	NC6120	CNU5351WLT	COMPUTER, LAPTOP	1618555	4S	3403	N/A	N/A
HP	NC6120	CNU5351WQ9	COMPUTER, LAPTOP	1618556	4S	3403	N/A	N/A
HP	NC6120	CNU5351VRZ	COMPUTER, LAPTOP	1618557	4S	3403	N/A	N/A

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MANUFACTURER	MODEL	SERIAL	DESCRIPTION	PROPERTY TAG	BLDG	ROOM	MAINT TYPE	Warranty/ Maint Expiration
HP	NC6120	CNU5351W6R	COMPUTER, LAPTOP	1618558	4S	3403	N/A	N/A
HP	NC6120	CNU5351WH1	COMPUTER, LAPTOP	1618559	4S	3403	N/A	N/A
HP	NC6120	CNU5351V9W	COMPUTER, LAPTOP	1618560	4S	3403	N/A	N/A
HP	NC6120	CNU5351WLZ	COMPUTER, LAPTOP	1618561	4S	3403	N/A	N/A
HP	NC6120	CNU5351WPC	COMPUTER, LAPTOP	1618563	4S	3403	N/A	N/A
HP	NC6120	CNU5351WPT	COMPUTER, LAPTOP	1618564	4S	3403	N/A	N/A
HP	NC6120	CNU5351X9Y	COMPUTER, LAPTOP	1618565	4S	3403	N/A	N/A
HP	NC6120	CNU5351XCN	COMPUTER, LAPTOP	1618527	4S	3403	N/A	N/A
HP	NC6120	CNU5351XKM	COMPUTER, LAPTOP	1618532	4S	3403	N/A	N/A
HP	NC6120	CNU5351XJZ	COMPUTER, LAPTOP	1618539	4S	3403	N/A	N/A
HP	NC6120	CNU5351X85	COMPUTER, LAPTOP	2525034	4S	3403	N/A	N/A
HP	NC6120	CNU5351X23	COMPUTER, LAPTOP	2529073	4S	3403	N/A	
HP	NC6120	CNU5351X6K	COMPUTER, LAPTOP	2260212	4S	3403	N/A	N/A
HP	NC6120	CNU5351WPW	COMPUTER, LAPTOP	2227924	4S	3403	N/A	N/A
HP	NC6120	CNU5351X47	COMPUTER, LAPTOP	2566695	4S	3403	N/A	N/A
HP	NC6120	CNU5351X7T	COMPUTER, LAPTOP	2260213	4S	3403	N/A	N/A
MAD DOG			DVD Burner		4S	3403	N/A	N/A
Omega			DVD Burner		4S	3403	N/A	N/A
Taxan	KG-PS125X		Projector		4S	3403	N/A	N/A
Taxan	KG-PS125X		Projector		4S	3403	N/A	N/A
Taxan	KG-PS125X		Projector		4S	3403	N/A	N/A
Taxan	KG-PS125X		Projector		4S	3403	N/A	N/A
Taxan	KG-PS125X		Projector		4S	3403	N/A	N/A
Taxan	KG-PS125X KG		Projector		4S	3403	N/A	N/A
Taxan	KG-PS125X KG		Projector		4S	3403	N/A	N/A
Taxan	KG-PS125X KG		Projector		4S	3403	N/A	N/A
Taxan	KG-PS125X		Projector		4S	3403	N/A	N/A

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PROGRAM INTEGRATION AND CONTROL

MANUFACTURER	MODEL	SERIAL	DESCRIPTION	PROPERTY TAG	BLDG	ROOM	MAINT TYPE	Warranty/ Maint Expiration
Taxan	KG-PS125X		Projector		4S	3403	N/A	N/A
HP	MP3220		Projector		4S	3403	N/A	N/A
HP	MP3220		Projector		4S	3403	N/A	N/A
HP	MP3220		Projector		4S	3403	N/A	N/A
HP	MP3220		Projector		4S	3403	N/A	N/A
HP	MP3220		Projector		4S	3403	N/A	N/A
COMPAQ	N800C-EVO	USH831014J	LAPTOP	2566534	30A	1080	N/A	N/A

Addendum 4 - List of Installation-Accountable Property and Services**Table 7 -MISCELLANEOUS HARDWARE**

MANUFACTURER	MODEL	SERIAL	DESCRIPTION	PROPERTY TAG	BLDG	ROOM	MAINT TYPE	Warranty/ Maint Expiration
Oce	2075	200002591	High speed printer/copier/scanner	241267	4S	3801	full (ODIN)	n/a
Oce	1075	100001676	High speed printer/copier/scanner	234836	4S	3315	full (ODIN)	n/a
Oce	1075	100001717	High speed printer/copier/scanner	234837	4S	4403	full (ODIN)	n/a
Oce	1075	100001679	High speed printer/copier/scanner	234838	4S	5403	full (ODIN)	n/a
Xerox	WC5030	FLA012914	High speed printer/copier/scanner	n/a	4S	3320	full (ISD)	n/a
Xerox	WC5675	WTM000524	High speed printer/copier/scanner	n/a	4S	3501	full (ISD)	n/a
Xerox	WC5050	FMAA013805	High speed printer/copier/scanner	n/a	4S	3403	full (ISD)	n/a

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PROGRAM INTEGRATION AND CONTROL

MANUFACTURER	MODEL	SERIAL	DESCRIPTION	PROPERTY TAG	BLDG	ROOM	MAINT TYPE	Warranty/ Maint Expiration
Xerox	WC5675	WTM000515	High speed printer/copier/scanner	n/a	4S	4501	full (ISD)	n/a
Xerox	WC5030	FLB013311	High speed printer/copier/scanner	n/a	4S	4214	full (ISD)	n/a
Xerox	WC5030	FLA013247	High speed printer/copier/scanner	n/a	4S	5320	full (ISD)	n/a
Xerox	WC7328	FKA466009	High speed printer/copier/scanner	n/a	4S	5320	full (ISD)	n/a
Xerox	WC5030	FLA013199	High speed printer/copier/scanner	n/a	4S	5306	full (ISD)	n/a
Xerox	WC5675	WTM000518	High speed printer/copier/scanner	n/a	1	530 (hall)	full (ISD)	n/a

Addendum 4 - List of Installation-Accountable Property and Services
Table 8 – GFE / Alternate Location

MANUFACTURER	MODEL	SERIAL	DESCRIPTION	PROPERTY TAG	BLDG	ROOM	MAINT TYPE	Warranty/ Maint Expiration

PROGRAM INTEGRATION AND CONTROL

Addendum 5 - Statement of Work to Program Work Breakdown Structure Map

Program Integration and Control		ISS WBS (SSP 50659, Rev C)	
SOW	Title	FWBS	Title
1.0	Management Integration and Control	1.0	Management Integration and Control
1.1	Program Management	1.1	Program Management
1.1.1	Program Management and Administration	1.1.1	Program Management and Administration
1.1.1.1	Planning and Reviews		
1.1.2	Internal/External Program Review Support	1.5.7	Advisory and Oversight
1.2	Business Management	1.2	Business Management
1.2.1	Reserved	1.2.1	Management and Administration
1.2.2	Reserved	1.2.2	Procurement
1.2.3	Resource Management	1.2.3	Resources Management
1.2.3.1	Financial Management		
1.2.3.2	Reserved		
1.2.3.3	Special Reporting		
1.2.3.4	PI&C Contract Work Breakdown Structure (WBS)		
1.2.4	ISS Program Budget Requirements and Assessments	1.2.4	Assessments
1.2.4.1	ISS Program Budget Database Maintenance and Tracking Contract		
1.2.4.2	ISS Program Reserves/Changes Management Database		
1.2.4.3	Assessments	1.2.4	Assessments
1.2.5	Program Scheduling	1.2.5	Program Scheduling
1.2.5.1	Schedule Management		
1.2.5.2	Scheduling System Support		
1.2.5.3	Team Schedule Support		
1.2.5.4	ISS Program Planning Calendar/Certification of Flight Readiness (CoFR) Review Meeting Matrix		
1.2.5.5	Schedule Risk Assessment		
1.2.5.6	Special Schedule Trade Studies		
1.2.5.7	Propose Alternate Report Formats		
1.3	Configuration Management (CM) / Data Management and Integration (DMI)	1.3	Configuration Management / Data Integration
1.3.1	Configuration Management	1.3.1	Configuration Management
1.3.1.1	Management and Administration		
1.3.1.2	Configuration Status Accounting and Verification		
1.3.1.3	Configuration Control		

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Program Integration and Control		ISS WBS (SSP 50659, Rev C)	
SOW	Title	PWBS	Title
1.3.1.4	Software Configuration Management Requirements		
1.3.2	Program Data Management and Integration	1.3.2	Program Data Integration/Vehicle Data Integration (VDI)
1.3.2.2	Program Technical Data Access		
1.4	Program Information Technology (IT)	1.4	Program Information Technology (IT)
1.4.1	IT Management and Administration	1.4.1	Information Technology Management
1.4.2	IT Systems Management and Operations	1.4.2	Systems Management and Operations
1.4.2.1	IT Life Cycle Management		
1.4.2.2	IT Security Support		
1.4.2.3	Work Authorization and User Support		
1.5	International Integration	1.5	International and External Integration
1.5.1	Reserved	1.5.1	Management and Administration
1.5.2	Reserved	1.5.2	International Programmatic Integration
1.5.3	IP Elements Integration Management	1.5.3	International Elements Integration
1.5.3.1	Systems Engineering and Integration of IP Elements		
1.5.3.2	IP Milestone Reviews		
1.5.3.3	ISS and Mission Integration		
1.6	Human Space Flight Collaboration	1.6	Human Space Flight Collaboration
2.0	ISS Systems Engineering, Analysis, and Integration	2.0	ISS Systems Engineering, Analysis, and Integration
2.1	Reserved	2.1	Management and Administration
2.2	Systems Analysis and Integration	2.2	Systems Analysis and Integration
2.2.1	Program Requirements and Interfaces	2.2.1	Requirements and Interfaces
2.2.1.1	ISS Specifications and ICDs Maintenance		
2.2.1.2	Coordination and Review of ISS Specifications, ICDs and IRDs		
2.2.1.3	Interface Control Working Group (ICWG)		
2.2.2	System Performance Analysis and Integration	2.2.2	System Performance Analysis and Integration
2.2.2.1	Mission Analysis and Integration		
2.2.2.2	Mission Requirements and Support		
2.2.2.3	System Analysis and Integration		
2.2.3	Strategic Planning, Assembly and Configuration Engineering	2.2.3	Assembly and Configuration Definition/Analysis
2.2.3.1	Strategic Planning and Integration		
2.2.3.2	External Configuration Analysis Modeling and Mass Properties		
2.2.3.3	Internal Volume Configuration (IVC)		

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[illegible]

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Addendum 6 – ISS Specifications / ICDs / IRDs / PIRNs / DCNs Documents List			
Document Number	Title	Book Coordin ate	Book Manage
ISSP-MD-114	Guidelines for Travel to Russia and from Russia to Support Meetings	X	
JSC 26557 Volumes 1 & 2	On-orbit Assembly Modeling and Mass Properties Data Book (Blue Book)	X	X
JPD 306	Establishment of the Program Risk Management Plan (PRMS)	X	X
JPD 315	Limited Life Item (LLI) Tracking and Control	X	X
JPD 328	ISS Corrective Action Plan/Preventive Action Process	X	X
MGT-OH-018	On-Orbit CDR Resolution Process	X	
No Number	BASEPLATE	X	
No Number	VIPER Interface Document (VID) Main Volume	X	
No Number	VIPER Interface Document Vol. 1 - Altitude and Propellant	X	
No Number	VIPER Interface Document Vol. 2 - Consumables	X	
No Number	VIPER Interface Document Vol. 3 - Energy Balance	X	
NSTS 08171 File 10	Operational Maintenance Requirements & Specification (OMRS) File 10	X	
NSTS-21000-IDD- ISS	Shuttle Orbiter/ International Space Station Interface Definition Document	X	
NSTS-21350	Shuttle to MPLM ICD	X	
OH-WI-017	International Space Station Configuration Management (CM) Directive Work Instruction	X	
PPD 522	Space Station Control Board/Panel Operations Policy	X	
SSP 30219	Space Station Reference Coordinate System Document	X	X
SSP 30223	Problem Reporting and Corrective Action (PRACA) for Space Station Program	X	X
SSP 30234	Failure Modes and Effects Analysis and Critical Items List (FMEA/CIL) Requirements for Space Station	X	X
SSP 30256:001	EVA Standard ICD	X	
SSP 30309	Safety Analysis and Risk Assessment Requirements Document	X	X

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SSP 30459	ISS Interface Control Plan	X	X
SSP 30550	SSP Robotic System Integration Requirements	X	X
SSP 30524	Problem Reporting and Corrective Action (PRACA) – Data System (PDS) Requirements Definition Document (RDD) for ISS Program	X	X
SSP 30599	Safety Review Process	X	X
SSP 30695	Acceptance Data Package Requirements Specification	X	X
SSP 41000	ISS System Spec	X	X
SSP 41002	ISPR to NASA/ESA /JAXA Modules ICD (ISPR ICD)	X	X
SSP 41004, Part 1	CBM To Pressurized Elements ICD, Part 1	X	
SSP 41004, Part 2	CBM To Pressurized Elements ICD, Part 2	X	
SSP 41015, Part 1	Common Hatch And Mechanisms To Pressurized Elements ICD, Part 1	X	
SSP 41015, Part 2	Common Hatch And Mechanisms To Pressurized Elements ICD, Part 2	X	
SSP 41017, Part 1	Rack To Mini Pressurized Logistics Module ICD, Part 1	X	
SSP 41017, Part 2	Rack To Mini Pressurized Logistics Module ICD, Part 2	X	
SSP 41140 Part 1	Node 1 to Node 3 ICD (Part 1)	X	X
SSP 41140 Part 2	Node 1 to Node 3 ICD (Part 2)	X	X
SSP 41142 Part 1	Node Elements to Cupola Element ICD (Part 1)	X	X
SSP 41142 Part 2	Node Elements to Cupola Element ICD (Part 2)	X	X
SSP 41143, Part 1	Node Element 2 To U.S. Laboratory Element ICD, Part 1	X	
SSP 41143, Part 1, Appendix D	Node 2 To Node 1 ICD, Part 1	X	
SSP 41143, Part 2	Node Element 2 To U.S. Laboratory Element ICD, Part 2	X	
SSP 41143, Part 2, Appendix C,	Node 3 To USL ICD	X	
SSP 41147 Part 1	Node 2 to CAM ICD (Part 1)	X	X
SSP 41147 Part 2	Node 2 to CAM ICD (Part 2)	X	X
SSP 41148, Part 1	Active CBM To Passive CBM ICD, Part 1	X	
SSP 41148, Part 2	Active CBM To Passive CBM ICD, Part 2	X	
SSP 41150	IRD SSMB To Columbus APM	X	X
SSP 41151	IRD SSMB to JEM (core)	X	X

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SSP 41151, Appendix D	IRD SSMB to JEM	X	X
SSP 41152	IRD ISPR ICD	X	X
SSP 41160	ESA Segments Specification for Columbus	X	X
SSP 41162	USOS Segment Spec	X	
SSP 41163	Russian Segment Specification	X	X
SSP 41165	Segment Specification for the JEM	X	X
SSP 41167	Mobile Servicing System Segment Specification	X	X
SSP 41168:2:2	ISS System Spec Traceability Report	X	X
SSP 41168:3:1	Columbus Segment Spec Traceability Report	X	X
SSP 41168:3:10	CAM Segment Spec Traceability Report	X	X
SSP 41168:3:11	ATV Segment Spec Traceability Report	X	X
SSP 41168:3:12	N3 Spec Traceability Report	X	X
SSP 41168:3:13	Cupola Segment Spec Traceability Report	X	X
SSP 41168:3:4	Russian Segment Traceability Report	X	X
SSP 41168:3:6	JEM Segment Spec Traceability Report	X	X
SSP 41168:3:7	MSS Segment Traceability Report	X	X
SSP 41168:3:9	HTV Segment Spec Traceability Report	X	X
SSP 41170	Configuration Management Requirements	X	X
SSP 41173	Space Station Quality Assurance Requirements	X	X
SSP 41174	ISS ICWG Operating Procedures	X	X
SSP 42000	SSMB To JEM ICD	X	X
SSP 42001	SSMB To Columbus APM ICD	X	X
SSP 42003, Part 1	SSMB To MSS ICD, Part 1	X	X
SSP 42003, Part 2	SSMB To MSS ICD, Part 2	X	X
SSP 42004, Part 1	MSS To User (Generic) ICD, Part 1	X	X
SSP 42004, Part 2	MSS To User (Generic) ICD, Part 2	X	X
SSP 42007 Part 1	USOS Segment to Italian MPLM ICD (Part 1)	X	X
SSP 42007 Part 2	USOS Segment to Italian MPLM ICD (Part 2)	X	X
SSP 42097, Part 1, App E	PMA to Node 3 ICD (Part 1)	X	X
SSP 42097, Part 2, App E	PMA to Node 3 ICD (Part 2)	X	X

<http://www.hq.nasa.gov/office/procurement/regs/nfstoc.htm>

(End of clause)

I.5 FAR 52.252-6 AUTHORIZED DEVIATIONS IN CLAUSES (APR 1984)

The use in this solicitation or contract of any Federal Acquisition Regulation (48 CFR Chapter 1) clause with an authorized deviation is indicated by the addition of “(DEVIATION)” after the date of the clause.

The use in this solicitation or contract of any NASA FAR Supplement Regulation (48 CFR 18) clause with an authorized deviation is indicated by the addition of “(DEVIATION)” after the name of the regulation.

(End of clause)

I.6 NFS 1852.204-76 SECURITY REQUIREMENTS FOR UNCLASSIFIED INFORMATION TECHNOLOGY RESOURCES (MAY 2008) DEVIATION

- (a) The Contractor shall be responsible for Information Technology (IT) security for all systems connected to a NASA network or operated by the Contractor for NASA, regardless of location. This clause is applicable to all or any part of the contract that includes information technology resources or services in which the Contractor must have physical or electronic access to NASA’s sensitive information contained in unclassified systems that directly support the mission of the Agency. This includes information technology, hardware, software, and the management, operation, maintenance, programming, and system administration of computer systems, networks, and telecommunications systems. Examples of tasks that require security provisions include:
- (1) Computer control of spacecraft, satellites, or aircraft or their payloads;
 - (2) Acquisition, transmission or analysis of data owned by NASA with significant replacement cost should the Contractor’s copy be corrupted; and
 - (3) Access to NASA networks or computers at a level beyond that granted the general public; e.g., bypassing a firewall.
- (b) The Contractor shall provide, implement, and maintain an IT Security Plan (DRD PIC-IT-03). This plan shall describe the processes and procedures that will be followed to ensure appropriate security of IT resources that are developed, processed, or used under this contract. The plan shall describe those parts of the contract to which this clause applies. The Contractor’s IT Security Plan shall be compliant with

Federal laws that include, but are not limited to, the Computer Security Act of 1987 (40 U.S.C. 1441 et seq.) and the Government Information Security Reform Act of 2000.

The plan shall meet IT security requirements in accordance with Federal and NASA policies and procedures that include, but are not limited to:

- (1) OMB Circular A-130, Management of Federal Information Resources, Appendix III, Security of Federal Automated Information Resources;
 - (2) NASA Procedural Requirements (NPR) 2810.1, Security of Information Technology;
 - (3) NPR 1600.1, NASA Security Program;
 - (4) NPR 1600.2, NASA Security Policy;
 - (5) NPR 1620.1, NASA Security Procedures and Guidelines;
 - (6) NPR 1620.2, Physical Security Vulnerability; and
 - (7) NPR 1620.3, Physical Security Requirements for NASA Facilities and Property.
- (c) Within the 30 days after contract award, as specified in DRD PIC-IT-01, the Contractor shall submit for NASA approval an IT Security Plan. This plan must be consistent with and further detail the approach contained in the offeror's proposal or sealed bid that resulted in the award of this contract and in compliance with the requirements stated in this clause. The plan, as approved by the Contracting Officer, shall be incorporated into the contract as a compliance document.
- (d) (1) Contractor personnel requiring privileged access or limited privileged access to systems operated by the Contractor for NASA or interconnected to a NASA network shall be screened at an appropriate level in accordance with NPR 2810.1, Section 4.5; NPR 1620.1, Chapter 3; and paragraph (d)(2) of this clause. Those Contractor personnel with non-privileged access do not require personnel screening. NASA shall provide screening using standard personnel screening National Agency Check (NAC) forms listed in paragraph (d)(3) of this clause, unless Contractor screening in accordance with paragraph (d)(4) is approved. The Contractor shall submit the required forms to the NASA Center Chief of Security (CCS) within fourteen (14) days after contract award or assignment of an individual to a position requiring screening. The forms may be obtained from the CCS. At the option of the government, interim access may be granted pending completion of the NAC.

- (2) Guidance for selecting the appropriate level of screening is based on the risk of adverse impact to NASA missions. NASA defines three levels of risk for which screening is required (IT-1 has the highest level of risk):
- (i) **IT-1** -- Individuals having privileged access or limited privileged access to systems whose misuse can cause very serious adverse impact to NASA missions. These systems include, for example, those that can transmit commands directly modifying the behavior of spacecraft, satellites or aircraft.
 - (ii) **IT-2** -- Individuals having privileged access or limited privileged access to systems whose misuse can cause serious adverse impact to NASA missions. These systems include, for example, those that can transmit commands directly modifying the behavior of payloads on spacecraft, satellites or aircraft; and those that contain the primary copy of "level 1" data whose cost to replace exceeds one million dollars.
 - (iii) **IT-3** -- Individuals having privileged access or limited privileged access to systems whose misuse can cause significant adverse impact to NASA missions. These systems include, for example, those that interconnect with a NASA network in a way that exceeds access by the general public, such as bypassing firewalls; and systems operated by the Contractor for NASA whose function or data has substantial cost to replace, even if these systems are not interconnected with a NASA network.
- (3) Screening for individuals shall employ forms appropriate for the level of risk as follows:
- (i) IT-1: Fingerprint Card (FC) 258 and Standard Form (SF) 85P, Questionnaire for Public Trust Positions;
 - (ii) IT-2: FC 258 and SF 85, Questionnaire for Non-Sensitive Positions; and
 - (iii) IT-3: NASA Form 531, Name Check, and FC 258.
- (4) The Contracting Officer may allow the Contractor to conduct its own screening of individuals requiring privileged access or limited privileged access provided the Contractor can demonstrate that the procedures used by the Contractor are equivalent to NASA's personnel screening procedures. As used here, equivalent includes a check for criminal history, as would be conducted by NASA, and completion of a questionnaire covering the same information as would be required by NASA.
- (5) Screening of Contractor personnel may be waived by the Contracting Officer for

those individuals who have proof of –

- (i) Current or recent national security clearances (within last three years);
 - (ii) Screening conducted by NASA within last three years; or
 - (iii) Screening conducted by the Contractor, within last three years, that is equivalent to the NASA personnel screening procedures as approved by the Contracting Officer under paragraph (d)(4) of this clause.
- (e) The Contractor shall ensure that its employees, in performance of the contract, receive annual IT security training in NASA IT Security policies, procedures, computer ethics, and best practices in accordance with NPR 2810.1, Section 4.3 requirements. The Contractor may use web-based training available from NASA to meet this requirement.
- (f) The Contractor shall afford NASA, including the Office of Inspector General, access to the Contractor's and subcontractors' facilities, installations, operations, documentation, databases and personnel used in performance of the contract. Access shall be provided to the extent required to carry out a program of IT inspection, investigation and audit to safeguard against threats and hazards to the integrity, availability and confidentiality of NASA data or to the function of computer systems operated on behalf of NASA, and to preserve evidence of computer crime.
- (g) The Contractor shall incorporate the substance of this clause in all subcontracts that meet the conditions in paragraph (a) of this clause.

(End of clause)

I.7 FAR 52.222-42 STATEMENT OF EQUIVALENT RATES FOR FEDERAL HIRES (MAY 1989)

In compliance with the Service Contract Act of 1965, as amended, and the regulations of the Secretary of Labor (29 CFR part 4), this clause identifies the classes of service employees expected to be employed under the contract and states the wages and fringe benefits payable to each if they were employed by the contracting agency subject to the provisions of 5 U.S.C. 5341 or 5332. This statement is for information only. It is not a Wage Determination.

Employee Class	Monetary Wage-Fringe Benefits
Program Manager	SES, \$91.97
Manager I	GS-15, \$45.71

Employee Class	Monetary Wage-Fringe Benefits
Manager	GS-13, \$32.88
Supervisor	GS-13, \$32.88
Technical Professional IV	GS-15, \$45.71
Technical Professional III	GS-13, \$32.88
Technical Professional II	GS-12, \$27.65
Technical Professional I	GS-7, \$15.59
IT Professional III	GS-14, \$38.86
IT Professional II	GS-13, \$32.88
Analyst III	GS-13, \$32.88
Analyst II	GS-12, \$27.65
Analyst I	GS- 9, \$19.07
Business Specialist II	GS-14, \$38.86
Business Specialist I	GS-12, \$27.65
Business Specialist	GS- 7, \$15.59
Other (additional Labor categories that proposed by the offeror which are not listed within the wage determination)	TBD

(End of clause)

I.8 NFS 1852.215-84 OMBUDSMAN (OCT 2003)

- (a) An ombudsman has been appointed to hear and facilitate the resolution of concerns from offerors, potential offerors, and Contractors during the pre-award and post-award phases of this acquisition. When requested, the ombudsman will maintain strict confidentiality as to the source of the concern. The existence of the ombudsman is not to diminish the authority of the Contracting Officer, the Source Evaluation Board, or the selection official. Further, the ombudsman does not participate in the evaluation of proposals, the source selection process, or the adjudication of formal contract disputes. Therefore, before consulting with an ombudsman, interested parties must first address their concerns, issues, disagreements, and/or recommendations to the Contracting Officer for resolution.
- (b) If resolution cannot be made by the Contracting Officer, interested parties may contact the Installation Ombudsmen, Melanie Saunders, address 2101 NASA

Parkway, Houston, Texas, 77058, at 281-483-0490, facsimile 281-483-2200, and e-mail melanie.saunders-1@nasa.gov or Lee Norbraten, address 2101 NASA Parkway, Houston, Texas, 77058 at 281-483-1973, facsimile 281-483-4707 and email g.i.norbraten@nasa.gov. Concerns, issues, disagreements, and disagreements, and recommendations which cannot be resolved at the installation may be referred to the NASA Ombudsman, the Director of the Contract Management Division, at 202-358-0514, facsimile 202-358-3083, e-mail diane.thompson@nasa.gov. Please do not contact the ombudsman to request copies of the solicitation, verify offer due date, or clarify technical requirements. Such inquiries shall be directed to the Contracting Officer or as specified elsewhere in this document.

(End of clause)

I.9 NFS 1852.237-72 ACCESS TO SENSITIVE INFORMATION (JUNE 2005)

- (a) As used in this clause, "sensitive information" refers to information that a Contractor has developed at private expense, or that the Government has generated that qualifies for an exception to the Freedom of Information Act, which is not currently in the public domain, and which may embody trade secrets or commercial or financial information, and which may be sensitive or privileged.
- (b) To assist NASA in accomplishing management activities and administrative functions, the Contractor shall provide the services specified elsewhere in this contract.
- (c) If performing this contract entails access to sensitive information, as defined above, the Contractor agrees to –
 - (1) Utilize any sensitive information coming into its possession only for the purposes of performing the services specified in this contract, and not to improve its own competitive position in another procurement.
 - (2) Safeguard sensitive information coming into its possession from unauthorized use and disclosure.
 - (3) Allow access to sensitive information only to those employees that need it to perform services under this contract.
 - (4) Preclude access and disclosure of sensitive information to persons and entities outside of the Contractor's organization.
 - (5) Train employees who may require access to sensitive information about their obligations to utilize it only to perform the services specified in this contract and to safeguard it from unauthorized use and disclosure.
 - (6) Obtain a written affirmation from each employee that he/she has received and will

comply with training on the authorized uses and mandatory protections of sensitive information needed in performing this contract.

- (7) Administer a monitoring process to ensure that employees comply with all reasonable security procedures, report any breaches to the Contracting Officer, and implement any necessary corrective actions.
- (d) The Contractor will comply with all procedures and obligations specified in its Organizational Conflicts of Interest Avoidance Plan, which this contract incorporates as a compliance document.
- (e) The nature of the work on this contract may subject the Contractor and its employees to a variety of laws and regulations relating to ethics, conflicts of interest, corruption, and other criminal or civil matters relating to the award and administration of Government contracts. Recognizing that this contract establishes a high standard of accountability and trust, the Government will carefully review the Contractor's performance in relation to the mandates and restrictions found in these laws and regulations. Unauthorized uses or disclosures of sensitive information may result in termination of this contract for default, or in debarment of the Contractor for serious misconduct affecting present responsibility as a Government Contractor.
- (f) The Contractor shall include the substance of this clause, including this paragraph (f), suitably modified to reflect the relationship of the parties, in all subcontracts that may involve access to sensitive information.

(End of clause)

I.10 NFS 1852.237-73 RELEASE OF SENSITIVE INFORMATION (JUNE 2005)

- (a) As used in this clause, "sensitive information" refers to information, not currently in the public domain, that the Contractor has developed at private expense, that may embody trade secrets or commercial or financial information, and that may be sensitive or privileged.
- (b) In accomplishing management activities and administrative functions, NASA relies heavily on the support of various service providers. To support NASA activities and functions, these service providers, as well as their subcontractors and their individual employees, may need access to sensitive information submitted by the Contractor under this contract. By submitting this proposal or performing this contract, the Contractor agrees that NASA may release to its service providers, their subcontractors, and their individual employees, sensitive information submitted during the course of this procurement, subject to the enumerated protections mandated by the clause at NFS 1852.237-72, Access to Sensitive Information.
- (c)(1) The Contractor shall identify any sensitive information submitted in support of

this proposal or in performing this contract. For purposes of identifying sensitive information, the Contractor may, in addition to any other notice or legend otherwise required, use a notice similar to the following:

Mark the title page with the following legend:

This proposal or document includes sensitive information that NASA shall not disclose outside the Agency and its service providers that support management activities and administrative functions. To gain access to this sensitive information, a service provider's contract must contain the clause at NFS 1852.237-72, Access to Sensitive Information. Consistent with this clause, the service provider shall not duplicate, use, or disclose the information in whole or in part for any purpose other than to perform the services specified in its contract. This restriction does not limit the Government's right to use this information if it is obtained from another source without restriction. The information subject to this restriction is contained in pages [insert page numbers or other identification of pages].

Mark each page of sensitive information the Contractor wishes to restrict with the following legend:

Use or disclosure of sensitive information contained on this page is subject to the restriction on the title page of this proposal or document.

- (2) The Contracting Officer shall evaluate the facts supporting any claim that particular information is "sensitive." This evaluation shall consider the time and resources necessary to protect the information in accordance with the detailed safeguards mandated by the clause at NFS 1852.237-72, Access to Sensitive Information. However, unless the Contracting Officer decides, with the advice of Center counsel, that reasonable grounds exist to challenge the Contractor's claim that particular information is sensitive, NASA and its service providers and their employees shall comply with all of the safeguards contained in paragraph (d) of this clause.
- (d) To receive access to sensitive information needed to assist NASA in accomplishing management activities and administrative functions, the service provider must be operating under a contract that contains the clause at NFS 1852.237-72, Access to Sensitive Information. This clause obligates the service provider to do the following:
 - (1) Comply with all specified procedures and obligations, including the Organizational Conflicts of Interest Avoidance Plan, which the contract has incorporated as a compliance document.
 - (2) Utilize any sensitive information coming into its possession only for the purpose of performing the services specified in its contract.

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- (3) Safeguard sensitive information coming into its possession from unauthorized use and disclosure.
 - (4) Allow access to sensitive information only to those employees that need it to perform services under its contract.
 - (5) Preclude access and disclosure of sensitive information to persons and entities outside of the service provider's organization.
 - (6) Train employees who may require access to sensitive information about their obligations to utilize it only to perform the services specified in its contract and to safeguard it from unauthorized use and disclosure.
 - (7) Obtain a written affirmation from each employee that he/she has received and will comply with training on the authorized uses and mandatory protections of sensitive information needed in performing this contract.
 - (8) Administer a monitoring process to ensure that employees comply with all reasonable security procedures, report any breaches to the Contracting Officer, and implement any necessary corrective actions.
- (e) When the service provider will have primary responsibility for operating an information technology system for NASA that contains sensitive information, the service provider's contract shall include the clause at NFS 1852.204-76, Security Requirements for Unclassified Information Technology Resources. The Security Requirements clause requires the service provider to implement an Information Technology Security Plan to protect information processed, stored, or transmitted from unauthorized access, alteration, disclosure, or use. Service provider personnel requiring privileged access or limited privileged access to these information technology systems are subject to screening using the standard National Agency Check (NAC) forms appropriate to the level of risk for adverse impact to NASA missions. The Contracting Officer may allow the service provider to conduct its own screening, provided the service provider employs substantially equivalent screening procedures.
- (f) This clause does not affect NASA's responsibilities under the Freedom of Information Act.
- (g) The Contractor shall insert this clause, including this paragraph (g), suitably modified to reflect the relationship of the parties, in all subcontracts that may require the furnishing of sensitive information.

(End of clause)

I.11 TECHNICAL INFORMATION RELEASES AND PUBLICATIONS

As authorized by paragraph (d)(1) of the Rights in Data-General Clause (FAR 52.227-14) of this contract, the following exception shall apply:

During the performance of this contract, if data relating to this contract is planned for use in oral or written presentations, professional meetings, seminars, or in articles to be published in professional, scientific, and technical journals and similar media, the Contractor shall assure that an advance information copy of the presentation or article is sent to the ISS Program in accordance with NF1676JSC, JSC Approval of Scientific and Technical Information for External Release, to have the benefit of advance information concerning accomplishments of interest, and will provide the ISS Program an opportunity to make suggestions to the Contractor concerning revisions if it is considered that such comments might be useful to the Contractor to help assure the technical accuracy of the information to be presented or published. The information copy will be forwarded to the technical monitor of the contract at least four weeks in advance of the date the author intends to give the presentation or submit the article for publication.

The advance information copy may be submitted in the format or medium, which will be utilized in its ultimate release.

(End of clause)

I.12 DATA RIGHTS NOTICE

- (a) Any proposal submitted during the course of contract performance must expressly identify any computer software or technical data that is to be provided with less than unlimited data rights. The Contractor shall notify the Contracting Officer in writing prior to incorporating any item, component, subcomponent, process, or software, wherein the related technical data or computer software qualifies as limited rights data or restricted computer software in accordance with Alternate II and III of FAR 52.227-14 and NFS 1852.227-86. This notification does not apply to commercial off-the-shelf (shrink-wrapped) computer software, and corresponding documentation, that has a standard commercial license unless the software is to be incorporated as a subcomponent in a developmental effort.
- (b) Technical data and computer software delivered shall not be marked with restrictive legends unless the Contracting Officer has given prior written consent.
- (c) All license agreements shall be compliant with Federal laws, regulations and the terms and conditions of this contract and shall be transferable to the Government upon completion of the contract without additional cost to the Government. One

copy of the final negotiated license agreement shall be forwarded to the Contracting Officer within 30 days of agreement to ensure compliance.

(End of clause)

I.13 LIMITED RIGHTS DATA NOTICE (DEC 2007)

(See Alternate II of the Rights in Data-General Clause (52.227-14 as modified at 1852.227-14)

(a) These data are submitted with limited rights under Government Contract No. NNJ09GA18B (and subcontract TBD, if appropriate). These data may be reproduced and used by the Government with the express limitation that they will not, without written permission of the Contractor, be used for purposes of manufacture nor disclosed outside the Government; except that the Government may disclose these data outside the Government for the following purposes, provided that the Government makes such disclosure subject to prohibition against further use and disclosure:

1. Use (except for manufacture) by support service Contractors.
2. Evaluation by non-Government evaluators.
3. Use (except for manufacture) by other Contractors participating in the Government's program of which the specific contract is a part, for information and use in connection with the work performed under each contract.
4. Emergency repair or overhaul work.
5. Release to a foreign government, or instrumentality thereof, as the interests of the United States Government may require, for information or evaluation, or for emergency repair or overhaul work by such Government.

(b) This notice shall be marked on any reproduction of these data, in whole or in part.

(End of clause)

I.14 FAR 52.222-54 EMPLOYMENT ELIGIBILITY VERIFICATION (JAN 2009)

(a) *Definitions.* As used in this clause—

Commercially available off-the-shelf (COTS) item—(1) Means any item of supply that is—(i) A commercial item (as defined in paragraph (1) of the definition at 2.101); (ii) Sold in substantial quantities in the commercial marketplace; and modification, in the same form in which it is sold in the commercial marketplace; and (2) Does not include bulk cargo, as defined in section 3 of the Shipping Act of 1984 (46 U.S.C. App. 1702), such as agricultural products and petroleum products. Per 46 CFR 525.1(c)(2), “bulk cargo” means cargo that is loaded and carried in bulk onboard ship without mark or count, in a loose unpackaged form, having homogenous characteristics. Bulk cargo loaded into intermodal equipment, except LASH or Seabee barges, is subject to mark and count and, therefore, ceases to be bulk cargo. *Employee assigned to the contract* means an employee who was hired after November 6, 1986, who is directly performing work, in the United States, under a contract that is required to include the clause prescribed at 22.1803. An employee is not considered to be directly performing work under a contract if the employee— (1) Normally performs support work, such as indirect or overhead functions; and (2) Does not perform any substantial duties applicable to the contract.

Subcontract means any contract, as defined in 2.101, entered into by a subcontractor to furnish supplies or services for performance of a prime contract or a subcontract. It includes but is not limited to purchase orders, and changes and modifications to purchase orders.

Subcontractor means any supplier, distributor, vendor, or firm that furnishes supplies or services to or for a prime Contractor or another subcontractor.

United States, as defined in 8 U.S.C. 1101(a)(38), means the 50 States, the District of Columbia, Puerto Rico, Guam, and the U.S. Virgin Islands.

(b) Enrollment and verification requirements.

(1) If the Contractor is not enrolled as a Federal Contractor in E-Verify at time of contract award, the Contractor shall—

(i) **Enroll.** Enroll as a Federal Contractor in the E-Verify program within 30 calendar days of contract award;

(ii) **Verify all new employees.** Within 90 calendar days of enrollment in the E-Verify program, begin to use E-Verify to initiate verification of employment eligibility of all new hires of the Contractor, who are working in the United States, whether or not assigned to the contract, within 3 business days after the date of hire (but see paragraph (b)(3) of this section); and

(iii) ***Verify employees assigned to the contract.*** For each employee assigned to the contract, initiate verification within 90 calendar days after date of enrollment or within 30 calendar days of the employee's assignment to the contract, whichever date is later (but see paragraph (b)(4) of this section).

(2) If the Contractor is enrolled as a Federal Contractor in E-Verify at time of contract award, the Contractor shall use E-Verify to initiate verification of employment eligibility of—

(i) ***All new employees.***

(A) ***Enrolled 90 calendar days or more.*** The Contractor shall initiate verification of all new hires of the Contractor, who are working in the United States, whether or not assigned to the contract, within 3 business days after the date of hire (but see paragraph (b)(3) of this section); or

(B) ***Enrolled less than 90 calendar days.*** Within 90 calendar days after enrollment as a Federal Contractor in E-Verify, the Contractor shall initiate verification of all new hires of the Contractor, who are working in the United States, whether or not assigned to the contract, within 3 business days after the date of hire (but see paragraph (b)(3) of this section); or

(ii) ***Employees assigned to the contract.*** For each employee assigned to the contract, the Contractor shall initiate verification within 90 calendar days after date of contract award or within 30 days after assignment to the contract, **whichever date is later** (but see paragraph (b)(4) of this section).

(3) If the Contractor is an institution of higher education (as defined at 20 U.S.C. 1001(a)); a State or local government or the government of a Federally recognized Indian tribe; or a surety performing under a takeover agreement entered into with a Federal agency pursuant to a performance bond, the Contractor may choose to verify only employees assigned to the contract, whether existing employees or new hires. The Contractor shall follow the applicable verification requirements at (b)(1) or (b)(2), respectively, except that any requirement for verification of new employees applies only to new employees assigned to the contract.

(4) ***Option to verify employment eligibility of all employees.*** The Contractor may elect to verify all existing employees hired after November 6, 1986, rather than

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just those employees assigned to the contract. The Contractor shall initiate verification for each existing employee working in the United States who was hired after November 6, 1986, within 180 calendar days of—

(i) Enrollment in the E-Verify program; or

(ii) Notification to E-Verify Operations of the Contractor's decision to exercise this option, using the contact information provided in the E-Verify program Memorandum of Understanding (MOU).

(5) The Contractor shall comply, for the period of performance of this contract, with the requirements of the E-Verify program MOU.

(i) The Department of Homeland Security (DHS) or the Social Security Administration (SSA) may terminate the Contractor's MOU and deny access to the E-Verify system in accordance with the terms of the MOU. In such case, the Contractor will be referred to a suspension or debarment official.

(ii) During the period between termination of the MOU and a decision by the suspension or debarment official whether to suspend or debar, the Contractor is excused from its obligations under paragraph (b) of this clause. If the suspension or debarment official determines not to suspend or debar the Contractor, then the Contractor must reenroll in E-Verify.

(c) **Web site.** Information on registration for and use of the E-Verify program can be obtained via the Internet at the Department of Homeland Security Web site:

<http://www.dhs.gov/E-Verify>.

(d) **Individuals previously verified.** The Contractor is not required by this clause to perform additional employment verification using E-Verify for any employee—

(1) Whose employment eligibility was previously verified by the Contractor through the E-Verify program;

(2) Who has been granted and holds an active U.S. Government security clearance for access to confidential, secret, or top secret information in accordance with the National Industrial Security Program Operating Manual; or

(3) Who has undergone a completed background investigation and been issued credentials pursuant to Homeland Security Presidential Directive (HSPD)–12, Policy for a Common Identification Standard for Federal Employees and Contractors.

(e) **Subcontracts.** The Contractor shall include the requirements of this clause, including this paragraph (e) (appropriately modified for identification of the parties), in each subcontract that—

(1) *Is for—*

(i) **Commercial or noncommercial services** (except for commercial services that are part of the purchase of a COTS item or an item that would be a COTS item, but for minor modifications), performed by the COTS provider, and are normally provided for hat COTS item); or

(ii) **Construction;**

(2) Has a value of more than \$3,000; and

(3) Includes work performed in the United States.

(End of clause)

[END OF SECTION]

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Data Requirements List and Data Requirements Descriptions

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DATA REQUIREMENTS LIST (DRL) AND DATA REQUIREMENTS DESCRIPTIONS

The following pages set out the documentation requirements of this contract, starting with a DRL, which is an index to the DRDs. Each DRD prescribes the required data product content, schedule, type, and other particulars for specific data submission requirements.

DRD #	Data Type	DRD Title
CM		
CM = Configuration Management		
PIC-CM-01	1	Configuration Management Plan
II		
II = International Integration		
PIC-II-01	2	ISS Program Support Plans for International Partner Milestone Reviews
PIC-II-02	2	Export Control Audit Results
IT		
IT = Information Technology		
PIC-IT-01	1	IT Management Plan
PIC-IT-02	1	IT Project Plan
PIC-IT-03	1	IT Security Plan and Reports
PC		
PC = Program Control & Business Management		
PIC-PC-01	2	Financial Report
PIC-PC-02		RESERVED
PIC-PC-03	2	Workforce Reports
PIC-PC-04	2	Work Breakdown Structure (WBS) and Dictionary
PIC-PC-05		RESERVED
PIC-PC-06	2 / 3	Integrated Program Schedules
PM		
PM = Program Management		
PIC-PM-01	1	PI&C Management Plan
PIC-PM-02	2	Program Management Review (PMR)
PIC-PM-03	1	Certification of Flight Readiness (CoFR) Plan
PR		
PR = Procurement		
PIC-PR-01	2	Patent Rights – Retention
PIC-PR-02	1	Contract Close-out Plan
PIC-PR-03	3	Wage/Salary and Fringe Benefit Data
PIC-PR-04	2	Data Reprocurement Package
PIC-PR-05	3	Task Order Plan
SA		
SA = Safety & Mission Assurance		
PIC-SA-01	1	Mission Assurance and Risk Management (MA&RM) Plan
PIC-SA-02	1	Safety and Health (S&H) Plan
PIC-SA-03	3	Monthly Safety and Health Metrics
PIC-SA-04	3	Safety and Health Program Self-Evaluation
PIC-SA-05	3	Probabilistic Risk Assessment (PRA)
PIC-SA-06	1	RESERVED

NNJ09GA18B

SECTION J
Attachment J-1

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DRD #	Data Type	DRD Title
PIC-SA-07	2	Hazard Reports and System Description
PIC-SA-08	1	Lessons Learned Program Plan and Lessons Learned
SI		SI = Systems Integration
PIC-SI-01	1	ISS Documents Maintenance and Assessment
PIC-SI-03	3	Systems Engineering Technical Assessments
PIC-SI-04	2	On-Orbit Assembly, Modeling, and Mass Properties Data Book (Blue Book)
PIC-SI-05	3	ISS Interior 3D CAD Models
VT		VT = Vehicle Technical Integration
PIC-VT-01	1	Operations and Maintenance Requirements and Specifications Database (OMRSD)

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Subject to the Clause 52.227-14, Rights in Data - General, this document sets forth the data requirements in each Data Requirements Description (DRD) and shall govern that data required for this contract. The Contractor shall furnish data defined by the DRD's listed on the Data Requirements List (DRL) by category of data. Such data shall be prepared, maintained, and delivered to NASA in accordance with the requirements set forth within this document. In cases where data requirements are covered by a Federal Acquisition Regulation (FAR) or NASA FAR Supplement (NFS) regulation or clause, the regulation will take precedence over this document, per FAR 52.215.8, Order of Precedence – Uniform Contract Format. NASA-Owned/Contractor-Held records shall be managed by the Contractor in accordance with Title 36 of the code of Federal Regulations, Chapter XII B, Records Management, and NPD 1440.6, NASA Records Management. The records shall be organized in accordance with the instructions in NPR 1441.1, NASA Records Retention Schedules, as applicable. The Contractor shall disposition records and non-records in accordance with NPR 1441.1 which has been approved by NASA and the National Archives and Records Administration (NARA). All questions on records management issues shall be directed through the Contracting Officer to the ISS Program Data Management.

Documents included as applicable documents in the data requirements form a part of this document to the extent specified herein. References to documents other than applicable documents in the data requirements of this document may sometimes be utilized. These do not constitute a contractual obligation on the Contractor. They are to be used only as a possible example or to provide related information to assist the Contractor in developing a response to that particular data requirement.

DESCRIPTION

This document identifies and defines the requirements and data types for information and data required under this contract.

The DRDs define, by an individual Data Requirement (DR), the information and data required for each deliverable document.

The data types are used to identify the approval and control required for each DR. The DRL is an index of all the DRs by category.

Documentation submitted pursuant to this clause may incorporate references to other current approved documentation, provided the references are adequate and include such identification elements as title, document number, and approval date (where applicable). However, if the pertinent information is of relatively minor size, the contractor shall incorporate the information itself, in lieu of using a reference. The contractor shall assure that any referenced information is readily available to appropriate users of the submitted document.

DATA TYPES

For the purpose of this clause, the following information/documentation types are applicable:

Type 1 - That information and documentation which requires NASA approval prior to release. Approved type 1 information and documentation shall be controlled, and deviations from or changes to the concepts, techniques, and/or requirements stated therein shall require NASA approval prior to implementation. All work under this contract covered by approved type 1 documents shall be performed

PROGRAM INTEGRATION AND CONTROL

in accordance with those approved documents. The Contracting Officers Technical Representative will have approval authority and will sign the data prior to its release. Contractually binding documents will not be implemented nor revised without contractual authorization.

Type 2 - That information and documentation for which NASA reserves a time-limited right to disapprove, in whole or in part. Type 2 data shall be submitted to JSC for review not less than 45 calendar days prior to its release for use or implementation. The Contractor shall clearly identify the release target date in the "submitted for review" transmittal. If the Contractor has not received any comment prior to the released target date, the document may be released for appropriate use. Any NASA comment received shall be appropriately dispositioned before the document is to be used. Type 2 data may be approved by NASA prior to its submittal.

Type 3 - That information and documentation which is provided to NASA for surveillance, information, review, and/or management control. This information does not require formal NASA review and approval. Information in this category would include design solutions, status, and cost/schedule reporting; analyses and test results, handbooks; and other designated lists, reports, etc.

Type 1 submissions shall be marked "TYPE 1 PRELIMINARY - PENDING NASA APPROVAL" or "TYPE 1 APPROVED BY NASA," as appropriate. Additional special designations and deviations may be required on specific submissions in accordance with configuration management requirements.

Type 2 submissions shall be marked "TYPE 2 PRELIMINARY - RELEASE TARGET DATE, xx/xx/xx" or "TYPE 2 FINAL - NASA COMMENTS INCLUDED" or "TYPE 2 FINAL DOCUMENT," where NASA comments were not received.

NOTE: Documents submitted under this clause, even though directly (Type 1) or implicitly (Type 2) approved by NASA, shall not take precedence over the specifications as set out in Section C, Statement of Work.

The Contractor shall formally deliver a complete revised Type 1 or Type 2 data requirement with NASA comments incorporated within 45 days of receipt of comments.

Type 3 submissions shall be marked "TYPE 3 DOCUMENT - FOR INFORMATION, SURVEILLANCE, REVIEW OR MANAGEMENT CONTROL".

NUMBER OF COPIES AND DISTRIBUTION REQUIREMENTS

The Contractor shall provide one copy of each DR to the standard distribution list shown in Block 12 of the DRDs. Additional distribution shall be made as directed, in writing, by the Contracting Officer. The number of copies required will not exceed the limits set forth in Clause 1852.208-81, Restrictions on Printing and Duplicating, without prior Contracting Officer approval. All deliverables shall be made through the GFD workflow in the Program authorized Document Management System.

ELECTRONIC FORMAT

DRDs shall be maintained electronically.

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DATA REQUIREMENTS DESCRIPTION

(Based on JSC-STD-123)

1a. DRD Title: Configuration Management Plan	2. Date of Current Version	3a. DRD No. PIC-CM-01	3b. RFP/Contract No. Final RFP NNJ09ZBG001R
1b. Data Type: 1 4. Use (Define need for, intended use of, and/or anticipated results of data) This plan is prepared by the contractor to describe the assignment of responsibility organizationally and the procedures used in accomplishment of the specific configuration management requirements as stated in the SOW and SSP 41170.			5. DRD Category <input type="checkbox"/> Technical <input checked="" type="checkbox"/> Administrative <input type="checkbox"/> SR&QA
6. References (SOW, Clause, etc.) SOW 1.3		7. Interrelationships (e.g., with other DRDs)	

8. PREPARATION INFORMATION: The Contractor shall prepare the deliverable as follows:

SCOPE: This CM plan defines the requirements, responsibilities, and procedures for the CM system pursuant to SSP 41170 and as it applies to this contract.

CONTENT: The CM plan shall address, as a minimum, the following:

A. Management Organization, (including reference documents)

1. Identification, Relationships and Integration of Contractor's proposed organization
2. Responsibility and authority for CM including roles in configuration control boards and technical reviews
3. Interfaces between Contractor's CM organization and NASA, subcontractors, and other Contractor's/contracts
4. Training plans

B. Configuration Identification

1. Selection of Configuration Items (CIs) (Hardware, Computer Software Configuration Items [CSCIs], and firmware)
2. Establishment of the functional, allocated and product baselines for hardware and software
3. Assignment and application of configuration identifiers including serial numbers, part numbers, lot codes, software and firmware identifiers

C. Configuration Control

1. Establishment of internal configuration and contractual baselines
2. Implementation of Internal and NASA configuration control
3. Establishment of configuration control boards and processes
4. Identification of processes to control changes, deviations, and waivers to program baselines

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D. Configuration Status Accounting

1. Hardware/Software Configuration Status Accounting processes and provisions for reports and/or access to Configuration Status Accounting data
2. Description and methods of processes and tools to provide:
 - i. Identification of current approved configuration documentation and configuration identifiers associated with each CI
 - ii. Status of proposed engineering changes from initiation to implementation
 - iii. Waiver/deviation status and processing
 - iv. Results of configuration audits; status and disposition of discrepancies
 - v. Traceability of changes and confirmation of change incorporation
 - vi. Methods of access to information
3. Retention of historical data
4. Systems and tools (including data elements)

E. Configuration Verification/Audits

1. Audit conduct, policies, procedures, documentation, access, and support
2. Processes, plans, schedules for internal CM audits and subcontractor CM audits

F. Data Management

1. Development, approval, release and submittal of configuration data/documentation (including drawings) in relation to program and contractual events (DRD's, technical reviews, FCA/PCA, Acceptance Reviews, COFR, etc.)
2. Plan for subcontractor data management deliveries/control access
3. Establishment and operation of Engineering Release Unit and CM receipt desk
4. Process for Documentation control (i.e., DCNs)
5. Retention of historical data
6. Systems and tools

FORMAT: Electronic.

9. OPR: OH2/NASA ISS Configuration Management Office

10. FIRST SUBMISSION DATE: Thirty (30) days after Contract Award. Final due sixty (60) days after contract start.

Frequency of Submission: After initial approval - Annually

Additional Submissions: Updated if major systems or processes are changed

11. MAINTENANCE: Electronic, as required (see additional submissions)

12. COPIES/DISTRIBUTION:

Program Authorized Repository Upload Notification: OH2/Data Management

1 electronic copy: Program Authorized Repository

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13. REMARKS: None

PROGRAM INTEGRATION AND CONTROL

DATA REQUIREMENTS DESCRIPTION

(Based on JSC-STD-123)

1a. DRD Title: ISS Program Support Plans for International Partner Milestone Reviews	2. Date of Current Version	3a. DRD No. PIC-II-01	3b. RFP/Contract No. Final RFP NNJ09ZBG001R
1b. Data Type: 2 4. Use (Define need for, intended use of, and/or anticipated results of data) Establish necessary planning and commitment for ISS Program teams' participation in the IP Reviews compatible with schedule, procedure and workload constraints applicable on both sides, ISS Program and IP. This deliverable governs the process and the scope of ISS participation in the review.		5. DRD Category X_ Technical ___ Administrative ___ SR&QA	
6. References (SOW, Clause, etc.) SOW 1.5.3.2.1		7. Interrelationships (e.g., with other DRDs)	

8. PREPARATION INFORMATION: The contractor shall prepare the deliverable as follows:

SCOPE: This DR contains the content, format, maintenance, and submittal requirements for the ISS Program Support Plans for IP Design, Qualification and Acceptance Reviews.

CONTENT: The Plans shall define ISS Program objectives, bilateral agreements on requirements baseline, ISS Program teams' participation, Milestone Review planning and process, and support schedule for the ISS Program teams. The Plans shall identify specific Data Package content, including IP data provided via IP Bilateral Data Exchange Agreements, Lists and Schedules (BDEALS) documents, and distribution information as well as Review Item Discrepancies (RID) review process, including development and screening procedures. The release of these documents will be via signatures of appropriate NASA ISS Program organization managers and the ISS Program Manager or delegated representative.

FORMAT: Electronic. These Plans will be team documents and will not be ISS Program CM controlled.

9. OPR: OM/Program Integration Office

10. FIRST SUBMISSION DATE: 1 month prior to the IP Milestone Review, as directed

Frequency of Submission: Once.

Additional Submissions: N/A

11. MAINTENANCE: Electronic

12. COPIES/DISTRIBUTION:

Program Authorized Repository Upload Notification: OH2/Data Management

Program Authorized Repository Upload Notification: OM/Program Integration Office

1 electronic copy: Program Authorized Repository

PROGRAM INTEGRATION AND CONTROL

13. REMARKS: None

PROGRAM INTEGRATION AND CONTROL

DATA REQUIREMENTS DESCRIPTION

(Based on JSC-STD-123)

1a. DRD Title: Export Control Audit Results	2. Date of Current Version	3a. DRD No. PIC-II-02	3b. RFP/Contract No. Final RFP NNJ09ZBG001R
1b. Data Type: 2			5. DRD Category Technical <input checked="" type="checkbox"/> Administrative SR&QA
4. Use (Define need for, intended use of, and/or anticipated results of data) To provide insight into the Contractor's Export Control processes			
6. References (SOW, Clause, etc.) NFS 1852.225-70 and clause H.10		7. Interrelationships (e.g., with other DRDs)	

8. PREPARATION INFORMATION: The contractor shall prepare the deliverable as follows:

SCOPE: Audits should include a thorough examination of all export control processes (as outlined in the Contractor's Export Control Plan) associated with this contract, areas for improvement (if any), and corrective action plans for identified areas of improvement. Affected subcontractors are required to do their own self-audits and report the results of the audit to NASA through the contractor. Prior to audit completion, inclusion on the audit process thru informal statuses to the JSC Export Services Team or Center Export Administrator is optional and might prove useful in the success of this effort.

CONTENT:

- A. Define current audit processes,
- B. Document the export control processes audited and audit findings ,
- C. Based on audit findings, the Contractor/subcontractor shall include corrective action plans for any processes identified for improvements and notification of when the correction of any non-conformances has been completed.

FORMAT: Electronic, compatible with the Program authorized repository

9. OPR: JSC Export Control Office or Center Export Administrator

10. FIRST SUBMISSION DATE: September 30, 2009

Frequency of Submission: Annually, at the end of each fiscal year

Additional Submissions: N/A

11. MAINTENANCE: The document shall be maintained electronically.

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12. COPIES/DISTRIBUTION:

Program Authorized Repository Upload Notification: OH2/Data Management
Program Authorized Repository Upload Notification: Export Control Office/Center Export
Administrator (CEA)
Program Authorized Repository Upload Notification: Contracting Officer
Program Authorized Repository Upload Notification: COTR
1 copy (electronic): Program Authorized Repository

13. REMARKS: None

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DATA REQUIREMENTS DESCRIPTION

(Based on JSC-STD-123)

1a. DRD Title: IT Management Plan	2. Date of Current Version	3a. DRD No. PIC-IT-01	3b. RFP/Contract No. Final RFP NNJ09ZBG001R
1b. Data Type: 1		4. Use (Define need for, intended use of, and/or anticipated results of data) The IT Management Plan is required to manage IT activities within the PI&C, to manage interfaces with other ISS Program users/customers and to manage interfaces with institutional IT providers.	
5. DRD Category ___ Technical <input checked="" type="checkbox"/> Administrative ___ SR&QA		6. References (SOW, Clause, etc.) SOW 1.4.1, 1.4.2	
7. Interrelationships (e.g., with other DRDs)			

8. PREPARATION INFORMATION: The Contractor shall prepare the deliverable as follows:

SCOPE: The Contractor shall provide plans to coordinate and execute all technical and administrative tasks for all activities required to manage ISS Program IT resources and interface with other ISS Program and institutional IT providers.

CONTENT: The IT Management Plan shall be an umbrella document, which encompasses and integrates all IT management activities. As a minimum, the IT Management Plan shall cover:

- A. The significant policies and plans of all aspects of reportable IT.
- B. Levels of approvals.
- C. Flow of authority.
- D. External interfaces with the Government, other ISS Program Contractors, and institutional IT providers.
- E. The relationship between and integration of IT DRDs to the overall management of the IT content.
- F. IT Metrics will be partnered annually and shall include:

(a) LEVEL 1 METRICS: The Contractor shall calculate and report service delivery, productivity, system availability, problem identification/resolution, and customer satisfaction for each functional area on a monthly basis. The monthly reports shall be available to the government within 2 weeks following monthly closeout. The Contractor shall use the same information to create and report quarterly and annual roll-ups.

(b) LEVEL 2 METRICS: Contractor-specific metrics will augment or provide greater detail

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than Level 1 metrics and identify key areas of interest (such as the measurement of proactive, vendor-discovered, versus user-discovered, problems). These metrics will be specified by the Contractor and will be used to augment, validate, and ensure the completeness of the Level 1 metrics; however, regular reporting of Contractor-specific metrics to the Government is not required. These metrics shall also be used to ensure the impartiality, effectiveness, and consistency of the overall metric gathering and reporting process.

(c) LEVEL 3 METRICS: The Contractor shall create a set of metrics, comprised of the previously reported Level 1 and Contractor-specific metrics, which will allow for the evaluation of time-based trends. These metrics will illustrate IOSS service level trends over the previous three-month or greater period.

(d) DAILY METRICS SUPPORT: The Contractor shall provide identification of work closures on a daily basis and shall provide for online read access to the detailed information for the closed work for a limited number (not to exceed 5) of individuals identified by the Contracting Officer (CO). These individuals should be able to request online reports, formatted from the available parameters.

FORMAT: Contractor-supplied format, compatible with ISS document standards

9. **OPR:** OH/ISS Management Systems Office

10. **FIRST SUBMISSION DATE:** 30 days after contract award

Frequency of Submission: Once

Additional Submissions: The IT Management Plan shall be updated as required to reflect significant changes that occur after its initial publication.

11. **MAINTENANCE:** The IT Management Plan shall be maintained electronically in the ISS EDMS (or equivalent).

12. **COPIES/DISTRIBUTION:**

Program Authorized Repository Upload Notification: OH2/Data Management

Program Authorized Repository Upload Notification: OH/ ISS Management Systems Office

1 electronic copy: Program Authorized Repository

13. **REMARKS:** None

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DATA REQUIREMENTS DESCRIPTION

(Based on JSC-STD-123)

1a. DRD Title: IT Project Plan	2. Date of Current Version	3a. DRD No. PIC-IT-02	3b. RFP/Contract No. Final RFP NNJ09ZBG001R
1b. Data Type: 1 4. Use (Define need for, intended use of, and/or anticipated results of data) IT Project Plans are required to baseline activities to be performed for all activities for which detailed project management is required to ensure the Contractor implement requirements within costs and schedule.			5. DRD Category <input checked="" type="checkbox"/> Technical <input type="checkbox"/> Administrative <input type="checkbox"/> SR&QA
6. References (SOW, Clause, etc.) SOW 1.4.2.1, NPR 7120.5, NPR 7120.7		7. Interrelationships (e.g., with other DRDs)	

8. PREPARATION INFORMATION: The contractor shall prepare the deliverable as follows:

SCOPE: The Contractor shall prepare project plans for coordination and execution of all developmental, sustaining engineering, and technology infusion projects submitted and implemented as part of the contracted work scope under the PI&C contract. For projects, the Contractor shall submit a project plan, which shall be used to assure: requirements are adequately communicated, the proposed design satisfies user operational and performance requirements, the proposed project costs are within budgetary constraints, and the completion schedule is reasonable. For project proposals, the Contractor shall include a preliminary project plan, which shall present the budgetary and technical aspects of the proposed work. Sections of the preliminary project plan may be incomplete or contain rough estimates. A project plan is considered preliminary until submitted in response to a written request for a project plan from the Information Technology Lead or their delegated representative.

CONTENT: For development projects performed under this contract, the Contractor shall provide the following items as directed by the Government:

- Project Plan – see below
- Developed or configured and tested system, ready for use.
- Additional documentation: – see below

FORMAT: The Contractor shall prepare the Project Plan in accordance with NPR 7120.7. If after initial delivery of the plan, the Government issues a change in the requirements, the Contractor shall revise the Project Plan to reflect those changes and resubmit it to the Contracting Officer.

The main body of the project plan provides an overview of the technical need, definition, schedule, and budget for the work. Contained in appendices are the operational concept and the top-level requirements and design. Since these appendices specify the knowledge and constraints at the time the project plan was written they are intended to be superseded by separate requirements and design documents produced during performance of the project. The appendices are

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retained since they represent the initial baseline for the project. The Project Plan is generated in accordance with P-IM-114, Project Planning Process.

PROJECT PLAN**1.0 INTRODUCTION**

If the proposal or project is the result of a service request, then this section restates the operational and performance requirements contained in the service request. If the proposal or project is not the result of a service request then this section states the need and requirements which determined this proposal or project. If this section contains only general requirements, the Contractor shall expand those requirements to comprehensively identify the total requirements in Appendix C. Environmental considerations and requirements should be identified here if needed for special processing and operations and expanded in Appendix C.

The following text is inserted as the first sentence of the introduction:

“The purpose of this proposal or project plan is to provide the proposal information or project evaluation regarding the <proposal or project name> for the ISS PI&C contract. This plan defines the objectives, deliveries, schedule and stakeholder’s responsibilities for the subject project. “

1.1 BACKGROUND

This is a short narrative describing the historical perspective that necessitated the proposal or project.

1.2 SCOPE

This is a short narrative stating the boundaries of the proposal or project in terms of the organizations or systems affected and how the result of this plan is beneficial.

2.0 OBJECTIVES

This is a short narrative stating, the goals and objectives of the project and proposal. This paragraph can refer to the project operational concept, requirements and design details that are documented as appendices to this document. It states why the resultant project is needed, which organization requested it, and who the equipment end users are. This paragraph also identifies whether the plan is for a developmental, sustaining engineering or technology infusion project. If the plan is the result of a service request, then usually, this information can be taken directly from the service request.

The plan shall include the additional information identifying the deliverables that are to be included in the scope of the work planned, as defined by the Contractor and approved by the Government’s Representative:

- Requirements Document - defines functional and performance requirements for the system.
- Design Document and Drawings – defines the design rationale, approach, and system cost elements. Includes diagrams depicting system elements, process and

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- logic flows, and platform and networking architecture. Also includes sustaining engineering and integration requirements.
- User Documentation (e.g., Quick Reference Guide, Users Guide, Administrators Guide)
 - Operations Plan – defines operational requirements for supporting the deployed system.
 - Deployment Plan – defines the approach and procedures for deploying the system into production.
 - Security Plan – Must conform to JSC standard format for security plans.
 - Verification of compliance with Section 508 of the Rehabilitation Act of 1974.
 - Profile for Out Year Sustaining Engineering Costs – defines operations, sustaining engineering and consumables costs for the 5 year period beginning at the time of deployment.
 - Test Plan – defines the testing methodology and test scenarios used to verify that the system functions as required. Test scenarios shall be correlated to each system requirement-by-requirement number.
 - Customer Acceptance Testing Results - documents the results of testing performed by system customers, including their concurrence that the system is ready for deployment.
 - Requirements Traceability Matrix – defines how each requirement is addressed.
 - As-built Design Document and Drawings – describes the system as built and deployed.
 - Studies and Market Survey Results – describes the results of studies and market surveys requested by the Government or initiated by the Contractor.
 - Training Plans - training on systems capabilities, operations, and architectures, as required, and training materials

Other information may identified by the Contractor and approved by the Government's Representative

3.0 SCHEDULE

The project schedule shall identify tasks, durations, completion dates, their dependencies, milestones, and critical path. For projects with multiple deliveries this information shall be provided for each delivery. Each deliverable identified in the OBJECTIVES above shall be identified on the schedule. The schedule milestones may include the following, referenced to the date of approval of the plan: 1) submission of initial design drawings, 2) submission of acceptance test procedures, 3) completion of system testing, 4) day system becomes operational, and 5) submission of final report. Additional milestones, as defined by the Contractor and approved by the Government's Representative, may be added to the schedule.

4.0 STAKEHOLDER RESPONSIBILITIES

This is a narrative identifying the organizations, and their roles and responsibilities, which are associated with the project.

5.0 BUDGET

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The project budget shall identify the costs associated with performing the project including developing, installing, and maintaining the project. The budget shall identify costs such as the following: 1) direct labor personnel-hours and dollar costs for engineering, technician support, drafting, and other direct labor; 2) indirect labor hours and dollar costs; 3) material costs; 4) equipment costs, and 5) other direct costs (ODC) such as travel or training. All dollar costs shall be stated as probable total costs to the Government and shall include G&A, indirect costs, and maximum performance award fee. Additional costs, as defined by the Contractor and approved by the Government's Representative, may be added to the budget.

APPENDIX A – ACRONYMS

This appendix lists and identifies each of the acronyms used in the project plan. If necessary, an additional glossary defining terminology may be added.

APPENDIX B – OPERATIONAL CONCEPT

This section provides the operational concept performed by the system delivered to the government. If the project plan is for proposed work, then this appendix provides a preliminary operational concept and identifies the appropriate documents which will include the comprehensive operational concept. The operational concept documents the functional processing of data with emphasis on user roles. This definition may be depicted as a data or process flow or depicted in several snapshot views of distinct business area functions.

APPENDIX C – REQUIREMENTS

This section provides the requirements of the system to be delivered to the government. If the project plan is for proposed work, then this appendix may provide preliminary requirements and identifies the appropriate documents which will include the comprehensive requirements. Where applicable, include the following: application requirements, system requirements, testing requirements. For projects with multiple deliveries, a cross reference shall be provided that identifies the requirements satisfied by each delivery.

APPENDIX D - DESIGN

This section provides the design and identifies the verification methods. Where applicable, include the following:

- Design approach
- Application design
- Data design
- Hardware, operating system and communications
- External interfaces
- Requirements traceability
- Test and verification methods

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If the project plan is for proposed work, then this appendix provides a preliminary design and identifies the design documents which will include the comprehensive design.

In this section the Contractor provides a narrative description and design diagram of the proposed design that will satisfy the operational concept. If the design contains brand name hardware equipment or software, then the design will include the rationale stating why the specific brand name is required.

Additionally, in this section, the Contractor identifies methods of verifying the completed design. Methods can include analyses, tests, or a combination of tests. This section includes or defines the results and data, which are submitted in the final report to verify the system design. For routine tasks and projects, the Contractor may propose using generic or existing test procedures.

9. OPR: OH/ISS Management Systems Office

10. FIRST SUBMISSION DATE: Within 2 weeks of assignment of a task to develop a Project Plan

Frequency of Submission: Once

Additional Submissions: As required

11. MAINTENANCE: Electronically, changes shall be incorporated by change page or complete reissue

12. COPIES/DISTRIBUTION:

Program Authorized Repository Upload Notification: OH2/Data Management

Program Authorized Repository Upload Notification: OH/ISS Management Systems Office

1 electronic copy: Program Authorized Repository

13. REMARKS: None

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DATA REQUIREMENTS DESCRIPTION

(Based on JSC-STD-123)

1a. DRD Title: IT Security Plan and Reports	2. Date of Current Version	3a. DRD No. PIC-IT-03	3b. RFP/Contract No. Final RFP NNJ09ZBG001R
1b. Data Type: 1	4. Use (Define need for, intended use of, and/or anticipated results of data) To meet IT security reporting requirements		5. DRD Category <input checked="" type="checkbox"/> Technical <input type="checkbox"/> Administrative <input type="checkbox"/> SR&QA
6. References (SOW, Clause, etc.) SOW 1.4.2.2.4, NPR 2810.1A, NPD 2810.1A, NFS 1852.204-76, FIPS-PUB-199, NIST SP 800-18, 800-30, 800-34, 800-37, 800-53, ITS-SOP-0005B, SOP-0009, SOP-0019B, SOP-0030C, SOP-0032, SOP-0033, SOP-0040, SOP-0043		7. Interrelationships (e.g., with other DRDs)	

8. PREPARATION INFORMATION: The Contractor shall prepare the deliverable as follows:

SCOPE: This DRD applies to all internal and external Information Technology (IT) systems that are managed under this contract and that contain or process NASA data or information.

CONTENT:**I. Internal Systems**

- (a) The Contractor shall update and maintain Certification and Accreditation (C&A) packages and related documentation for ISS Program IT systems as per NPR 2810.1A, ITS-SOP-0030C and NIST 800-37. Major re-certifications of IT Systems requiring C&A occur every three years, and the Contractor must prepare for and support this activity to ensure successful system re-certification. The next major re-certification for the ISS Production Facility system is anticipated to occur in June 2010.
- (1) The Contractor shall map types of ISS information and ISS Program IT systems to security categories as per NPR 2810.1A, ITS-SOP-0019B, FIPS-PUB-199 and NIST 800-60 (Volumes 1 and 2).
- (2) The Contractor shall update risk assessments for ISS Program IT systems as per NPR 2810.1A and NIST 800-30.
- (3) The Contractor shall update and maintain a Security Plan and a Plan of Actions and Milestones (POA&M) for ISS Program IT systems as per NPR 2810.1A, ITS-SOP-0032 and NIST 800-18 Rev 1, assessing security controls as per NIST 800-53.

PROGRAM INTEGRATION AND CONTROL

- (4) The Contractor shall perform periodic technical assessment, security testing and continuous monitoring of ISS Program IT systems as per NPR 2810.1A and NITR 2810-12.
- (5) The Contractor shall perform disaster recover, contingency, and continuity of operations planning and testing for ISS Program IT systems as per NPR 2810.1A and NITR 2810-15. The planning and testing shall include support of Center severe-weather annual planning and testing.

II. External Systems

The Contractor shall follow the instructions in ITS-SOP-0033 for any external systems that are managed under this contract.

INFORMATION ON EMPLOYEES IN SENSITIVE AIS POSITIONS/ASSIGNMENTS REPORT: The Information on Employees in Sensitive ITS Positions/Assignments Report shall provide information for personnel screening as required by NPR 2810.1A.

FORMAT: As defined in NPR 2810.1A and the applicable NIST, NITR and ITS-SOP documents specified above.

9. OPR: OH/ISS Chief Information Officer

10. FIRST SUBMISSION DATE: Thirty (30) days after contract award

Frequency of Submission: As defined in NPR 2810.1A
Additional Submissions: As defined in NPR 2810.1A

11. MAINTENANCE: As defined in NPR 2810.1A

12. COPIES/DISTRIBUTION:

Program Authorized Repository Upload Notification: OH2/Data Management
Program Authorized Repository Upload Notification: OH/ISS Chief Information Officer
1 electronic copy: Program Authorized Repository

13. REMARKS: None.

PROGRAM INTEGRATION AND CONTROL

DATA REQUIREMENTS DESCRIPTION**(Based on JSC-STD-123)**

1a. DRD Title: Financial Management Reporting	2. Date of Current Version	3a. DRD No. PIC-PC-01	3b. Contract No. NNJ09GA18B
1b. Data Type: 2		4. Use (Define need for, intended use of, and/or anticipated results of data) Provide a basis for reporting and evaluating contract cost performance. Financial data contained in the reports must be auditable using Generally Accepted Accounting Principles.	
5. DRD Category ___ Technical X Administrative ___ SR&QA		6. References (SOW, Clause, etc.) H.3 NFS 1852.216-80 Task Ordering Procedure (OCT 1996)	
7. Interrelationships (e.g., with other DRDs) PIC-PM-02 Program Management Review; PIC-PC-3 Workload Reports; PIC-PR-05 Task Order Plan			

8. PREPARATION INFORMATION:**SCOPE:**

Contract financial management reports shall identify all task order cost elements and include baseline plan, actuals, and variance analysis. Variances greater than $\pm 5\%$ shall include an explanation for the variance and identify contractor actions to address the variance. Variances shall be provided for both format 1 and format 3. For format 1, the variance explanation shall be provided at the task order level for task orders running greater than $\pm 5\%$ to the task order total authorized cost and/or hours. For format 3, the variance explanation shall be provided at the WBS level for dollars only when actuals are greater than $\pm 5\%$ of forecast. Financial reporting formats shall include:

Format 1 - Task Order Report

~~Format 2 - Contract Summary Report (Task Order)~~

Format 3 - Contract Summary Report (Work Breakdown Structure)

CONTENT: Financial Management Report Formats and Instructions are included in Attachment 1. Financial management reporting shall reconcile to DRD PIC-PM-02 Program Management Review, DRD PIC-PC-03 Workload Reports, and DRD PIC-PR-05 Task Plan.

FORMAT: Financial Management Reports shall be submitted in Microsoft Excel file (.xls) format, with narrative summaries provided in Microsoft Word file (.doc) format. Note: Alternate contractor formats will be considered.

- 9. OPR:** BG/Contracting Officer – Formats 1.
LO/Contract Analyst - Formats 3.

DRD PIC-PC-01

Attachment 1

The Financial Management Report provides data necessary for the following:

1. Projecting hours, associated costs, and WYEs to ensure that dollar and labor resources realistically support project and program schedules.
2. Tracking contractors' actual hours and associated costs in relation to negotiated contract value, negotiated rates, projected costs, and budget forecast data.
3. Planning, monitoring, and controlling project and program resources.
4. Accruing cost in NASA's accounting system, providing program and functional management information, resulting in liabilities reflected on the financial statements.

Financial Management Reporting

The due dates reflect the date the financial management reports are loaded into IDMS, not the date the reports are generated or mailed by the contractor. It is critical that the financial management reports are submitted in a timely manner to ensure adequate time for NASA to analyze and record the cost into the NASA accounting system.

Variance explanation computation is $\text{Planned Monthly Hours and Associated Costs} - \text{Monthly Actual Hours and Associated Costs} / \text{Planned Monthly Hours and Associated Costs}$. Variance explanations shall include insight to the 3rd level WBS and shall detail the root cause of the variance (i.e., ISS Program change in direction, unexpected problems, etc.). Variance explanations shall address any impact to delivery and/or schedule and the contractor's plan for resolving the impact of the variance. Forecast plans shall be updated to be consistent with the task order schedule.

Work Year Equivalent (WYE)

Work Year Equivalents (WYE) is a full time equivalent defined as the proposed productive hours needed to comprise one average full time employee. This may be one employee or several part time employees. Productive hours are defined as the total available hours for productive work in a year, excluding overtime, less paid time off.

Format 1

Monthly Task Order Report		Report for Month Ending:		Contract Type:		Contract Value:		Invoice Amts Billed:		Total Pymts Rec'd:		Fund Limitation:	
Contractor's Name and Scope of Contract:				Contract No. and Definitized Modification No.:				Signature, Title, Date:				Report for Month Ending:	
Format 1		Current Month		Cumulative			Plan			Balance of		Total	
Task Order Number		Planned	Actual	Variance	Planned	Actual	Variance	Month + 1	Month + 2	Month + 3	Fiscal Year		
Fiscal Year: XXXX													
Task Order XX-XX-01													
Variance Explanation													
Direct Labor Dollars													
Direct Labor Hours													
Direct Labor WYES													
SLC #1		Dollars											
SLC #1		Hours											
SLC #1		WYES											
SLC #2		Dollars											
SLC #2		Hours											
SLC #2		WYES											
Non-Labor Resources:													
Material / Supplies		Dollars											
Travel		Dollars											
Lease/Materials - Conf Facility		Dollars											
Fiscal Year XXXX Total													
Fiscal Year: XXXX													
Task Order XX-XX-02													
Variance Explanation													
Direct Labor Dollars													
Direct Labor Hours													
Direct Labor WYES													
SLC #1		Dollars											
SLC #1		Hours											
SLC #1		WYES											
SLC #2		Dollars											
SLC #2		Hours											
SLC #2		WYES											
Non-Labor Resources:													
Material / Supplies		Dollars											
Travel		Dollars											
Training		Dollars											
Lease/Materials - Conf Facility		Dollars											
Fiscal Year XXXX Total													
Contract Total													
Report Criteria: Plan Data: Baseline - NASA Forecast Data: Forecast - NASA Actual Cost Data: Actual - NASA													

Format 3

[illegible]

1.4.1	Information Technology Management	Dollars Hours WYES
1.4.2	Systems Management and Operations	Dollars Hours WYES
1.5.3	Informational Elements Integration	Dollars Hours WYES
2.2.1	Requirements and Interfaces	Dollars Hours WYES
2.2.2	System Performance Analysis and Integration	Dollars Hours WYES
2.2.3	Assembly and Configuration Definition/ Analysis	Dollars Hours WYES
3.1.1.1	Engineering & Technical Services	Dollars Hours WYES
3.1.1.3	Vehicle Management and Administration (E&Ts)	Dollars Hours WYES
3.2.1	Visiting Vehicle	Dollars Hours WYES
6	Safety and Mission Assurance (S&MA)	Dollars Hours WYES
Total Contract		Dollars Hours WYES

Report Criteria:

Plan Data: Baseline - NASA

Forecast Data: Forecast - NASA

Actual Cost Data: Actual - NASA

DATA REQUIREMENTS DESCRIPTION
(Based on JSC-STD-123)

1a. DRD Title: Workforce Reports	2. Date of Current Version	3a. DRD No. PIC-PC-03	3b. RFP/Contract No. Final RFP NNJ09ZBG001R
1b. Data Type: 2			5. DRD Category <input type="checkbox"/> Technical <input checked="" type="checkbox"/> Administrative <input type="checkbox"/> SR&QA
4. Use (Define need for, intended use of, and/or anticipated results of data) To provide workforce information by geographic location.			
6. References (SOW, Clause, etc.)		7. Interrelationships (e.g., with other DRDs) All PIC-PC and PIC-PM DRDs	

8. PREPARATION INFORMATION: The contractor shall prepare the deliverable as follows:

SCOPE: The reports provide workforce data by geographic location. There are two types of reports: 1) a Workforce Report by location, and 2) an As Requested Workforce Report.

CONTENT: The Workforce Report shall provide:

A. Workforce Year Equivalent (WYEs) by location, specifically:

- (1) By NASA Center
- (2) By State
- (3) Tailored as request by NASA Headquarters

B. Estimated indirect hours and percent of fiscal year contract.

C. Estimated minor subcontractor hours not reported as WYEs in item 1 and percent of fiscal year contract.

The content of the As Requested Workforce Report will vary based on specific direction provided by NASA Headquarters to support congressional inquiries. There is the potential requirement to provide workforce by Zip Code.

FORMAT: Specific formatting to be tailored by LO/Contractor.

9. OPR: LO

10. FIRST SUBMISSION DATE: Ten (10) Workdays after end of fiscal year

Frequency of Submission: Annual

Additional Submissions: As required for the As Requested Workforce Report

11. MAINTENANCE: Changes shall be incorporated by change page or complete reissue.

12. COPIES/DISTRIBUTION:

Program Authorized Repository Upload Notification: LW
Program Authorized Repository Upload Notification: LO
Program Authorized Repository Upload Notification: OH/Resources Management Office

Program Authorized Repository Upload Notification: OH2/Data Management
Program Authorized Repository Upload Notification: COTR, BG
1 electronic copy: Program secure repository

13. REMARKS: None

DATA REQUIREMENTS DESCRIPTION
 (Based on JSC-STD-123)

(Based on ODC STD 122)			
1a. DRD Title: Work Breakdown Structure (WBS) and Dictionary	2. Date of Current Version	3a. DRD No. PIC-PC-04	3b. RFP/Contract No. Final RFP NNJ09ZBG001R
1b. Data Type: 2			
4. Use (Define need for, intended use of, and/or anticipated results of data) Provides framework to define work and to establish financial reporting levels and to correlate schedules.			5. DRD Category ___ Technical X Administrative ___ SR&QA
6. References (SOW, Clause, etc.)		7. Interrelationships (e.g., with other DRDs) All PIC-PC and PIC-PM DRDs	

8. PREPARATION INFORMATION: The Contractor shall prepare the deliverable as follows:

SCOPE: Contains the contractual Work Breakdown Structure (WBS), the WBS Dictionary, and a map to the ISS Program WBS.

CONTENT: Contains the contractual WBS, its Dictionary, and ISS Program map as follows:

The WBS and Dictionary shall indicate the mapping of the Contractor WBS to the contract SOW WBS and the ISS Program WBS at the lowest levels of the ISS Program WBS.

- A. WBS: The WBS shall subdivide the total contracted effort into elements that serve as the basis for detailed planning and control of the project, and permit collection of cost and schedule data at element level. These elements include hardware, software, services, tasks, etc. It shall include all subcontracting and major procurement effort at the proper level. It shall be product oriented and structured so that key SOW tasks are at an appropriately high level.

B. WBS Dictionary: The WBS Dictionary shall define the scope of each WBS element and narratively describe the tasks included in each element

C. Program WBS Map: The Contractor shall provide a mapping of the contract WBS to the ISS Program WBS.

FORMAT: Per JSC instructions and in a format supported by the Program-authorized electronic library. The WBS shall be in a chart format showing element relationships. The WBS Dictionary shall be ordered in consonance with the WBS and shall reference each WBS element by its identifier and name. Specific formatting for the map to the Program WBS will be done by LO/Contractor.

9. **OPR:** OH

10. **FIRST SUBMISSION DATE:** Thirty (30) days after contract start date.

Frequency of Submission: As required

Additional Submissions: N/A

11. **MAINTENANCE:** Electronically. Information shall be updated as required by the Contractor.

12. **COPIES/DISTRIBUTION:**

Program Authorized Repository Upload Notification: LW

2 hardcopies: LO

Program Authorized Repository Upload Notification: LO

Program Authorized Repository Upload Notification: OH2/Data Management

1 electronic copy: COTR and BG

1 electronic copy: Program secure repository

13. **REMARKS:** None

“DATA REQUIREMENTS DESCRIPTION

(Based on JSC-STD-123)

1a. DRD Title: Program Schedules 1b. Data Type: 2 (Initial), 3 (Subsequent)	2. Date of Current Version	3a. DRD No. <p style="text-align: center;">PIC-PC-06</p>	3b. RFP/Contract No. <p style="text-align: center;">NNJ09GA18B</p>
4. Use: The schedules and schedule assessments are needed to support program cost, technical and schedule control activities performed within the Program Planning and Control (PP&C) Office and other Control Account Manager (CAM) Offices. These products will be used in multiple Program reviews and/or reports			5. DRD Category <input type="checkbox"/> Technical <input checked="" type="checkbox"/> Administrative <input type="checkbox"/> SR&QA
6. References SOW 1.2.5; Task Order / Task Order Plan		7. Interrelationships (e.g., with other DRDs)	

8. PREPARATION INFORMATION: The contractor shall prepare the deliverable as follows:

SCOPE: The contractor shall provide individual schedules and schedule assessments at the level necessary to support the requirements of PP&C office and other CAM offices as denoted below. The contractor shall provide a Program Level calendar of significant events. The contractor shall provide an integrated CoFR matrix to support the ISS Program readiness related meetings (both pre and post flight) for those missions scheduled to fly to the ISS, as noted below. All schedule and assessment requirements, contained in this DRD, shall be directed by task order with specific schedules and assessments identified in the task plan.

CONTENT: All schedules provided shall utilize an approach (see Attachment A) that shall provide the ability to identify, analyze, mitigate and control scheduling risks and impacts; accurately identify and analyze critical path activities; and allow its users to easily measure the progress toward achieving the intended plan in ISS Projects. The schedules and schedule assessments outlined in Table 1 shall include:

SCHEDULE MANAGEMENT:

- A. *30-60-90 Calendar* – The contractor shall provide and maintain a program calendar that encompasses a rolling 90 days. This calendar shall display the current planned dates for ISS Program Management activities, program meetings, significant events, etc.
- B. *CAM Specific Schedules* – The contractor shall provide integrated schedules and schedule products, identified activities, or projects in a format suitable for each schedule

that includes the milestones necessary for management to assess the progress of those activities. These schedules shall incorporate data from outside sources (e.g. International Partners) where required.

- C. *Certification of Flight Readiness (CoFR Matrix)* – The contractor shall provide and maintain a CoFR matrix that contains the most current dates for all readiness related meetings (both pre and post flight) for those missions scheduled to fly to the ISS.
- D. *Ad hoc Schedules* – The contractor shall provide schedules for special projects when required to support special tasking from NASA Headquarters or other external agencies.

SCHEDULE ASSESSMENTS:

- A. *Flight Specific Assessments* – The contractor shall provide a schedule assessment for each flight planned to the ISS. These summary assessments shall include an independent assessment of the readiness of each ISS payload, orbital replacement unit (ORU), flight support equipment item and carrier to meet the program need dates to support the launch date. The contractor shall submit these assessments in a format consolidated by flight that can be utilized within the ISS Monthly Program Review (IMPR) and Early Warning System (EWS) Report.
- B. *Critical Item Assessments* – The contractor shall provide independent schedule assessments for the remaining development work on the ISS Program. These assessments shall include a current schedule status for each development item. The assessments shall be submitted in a consolidated format approved by NASA.

FORMAT: See Table 1.

9. OPR: OH3

10. FIRST SUBMISSION DATE: See Table 1.

Frequency of Submission: See Table 1.

Additional Submissions: See Table 1.

11. MAINTENANCE: Changes shall be incorporated by change page or complete reissue.

12. COPIES/DISTRIBUTION:

Program Authorized Repository Upload Notification: OH2/Data Management

Program Authorized Repository Upload Notification: OH3

1 electronic copy: Program Authorized Repository

13. REMARKS: None.

TABLE 1 PIC-PC-06 DELIVERABLE SUMMARY

SCHEDULE MANAGEMENT		Deliverable	First Submission	Frequency	Additional Submissions	Format
SOW Paragraph						
1.2.5.5a		The 30-60-90 ISS Planning Calendar	N/A	Twice per week	Informal Updates	Electronic (uploaded to ISS Webpage) & hardcopies to OH
1.2.5.4		CAM Specific Schedules	N/A	Monthly	Informal Updates	E-mail. Electronic (uploaded to ISS Webpage). Contractor format acceptable
1.2.5.5b		CoFR Matrix	N/A	Weekly	Informal Updates	E-mail. Electronic (uploaded to ISS Webpage). Contractor format acceptable
1.2.5.6		Ad hoc schedules	N/A	N/A	Informal Updates	E-mail. Electronic. Contractor format acceptable
SCHEDULE ASSESSMENTS						
1.2.5.3a, b, & c		Flight Specific Assessments	N/A	Monthly	5 business days after last day of reporting month	E-mail. Electronic. Contractor format acceptable
1.2.5.3b & c		Critical Items Assessments	N/A	Monthly	5 business days after last day of reporting month	E-mail. Electronic. Contractor format acceptable

DRD PIC-PC-06
Attachment A

Scheduling approaches shall address, but not be limited to, the following information:

1. Scheduling methodology that is consistent with the current Project Management Institute standards.
2. Predicted task duration derived from accurate and objective prediction methodologies
3. Indications of activities by appropriate nomenclature that clearly delineates the task to be performed
4. Identification of who is responsible for doing the actual work
5. Required supporting activities or support from other contractors, outside organizations, agencies, or center.
6. Identification of critical resource requirements.
7. Clear depiction of the interrelationships and constraints among related tasks
8. Identification of the critical path, priorities, high risk activities and other significant activities
9. Special test activities or requirements."

DATA REQUIREMENTS DESCRIPTION

(Based on JSC-STD-123)

1a. DRD Title: PI&C Management Plan	2. Date of Current Version	3a. DRD No. PIC-PM-01	3b. RFP/Contract No. Final RFP NNJ09ZBG001R
1b. Data Type: 1 4. Use (Define need for, intended use of, and/or anticipated results of data) To enable NASA to evaluate the Contractor's management organization, approach, processes and systems.		5. DRD Category <input type="checkbox"/> Technical <input checked="" type="checkbox"/> Administrative <input type="checkbox"/> SR&QA	
6. References (SOW, Clause, etc.) RFP Clause H.10, Additional Export Control Requirements F.6, Phase-In and Close-Out		7. Interrelationships (e.g., with other DRDs) All PIC-PC and PIC-PM DRDs	

8. PREPARATION INFORMATION: The Contractor shall prepare the deliverable as follows:

SCOPE: The PI&C Management Plan shall describe the basis for the Contractor's management organization, approach, and processes. It shall provide a comprehensive integration of all management systems of the prime and subcontractors. The plan will include those processes specifically required to accomplish the Statement of Work, as well as those systems and procedures that are to be set in place by the contractor. The PI&C Management Plan shall describe the Contractor's approach for accomplishing contract functions while adhering to export laws, regulations and directives.

CONTENT: The PI&C Management Plan shall address the Contractor's plan for work definition and authorization, scheduling, budgeting, data accumulation, Safety and Mission Assurance, Program recovery process, subcontract, material control, indirect cost management, baseline control, and organization structure.

FORMAT: Contractor's format is acceptable.

9. OPR: COTR

10. FIRST SUBMISSION DATE: Draft within thirty (30) days after contract award. Final within ninety (90) days after contract start.

Frequency of Submission: See below

Additional Submissions: Within 45 days after the addition/deletion of major content to the contract or to describe and justify major changes in the Contractor's management organization, approach and/or processes.

11. MAINTENANCE: Electronic. Changes shall be incorporated as required by change page or complete reissue.

12. COPIES/DISTRIBUTION:

Program Authorized Repository Upload Notification: OH2/Data Management

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1 electronic copy: Program Authorized Repository

13. REMARKS: None

DATA REQUIREMENTS DESCRIPTION
(Based on JSC-STD-123)

1a. DRD Title: Program Management Review (PMR). 1b. Data Type: 2	2. Date of Current Version	3a. DRD No. PIC-PM-02	3b. Contract No. NNJ09GA18B
4. Use (Define need for, intended use of, and/or anticipated results of data) Provides contract performance summary status including analysis of cost, schedule, and technical performance.			5. DRD Category — Technical <input checked="" type="checkbox"/> Administrative — SR&QA
6. References (SOW, Clause, etc.) NPR 7120.5B NPR 9501.2 SOW 1.1.1.1.2 Performance Management Reviews H.3 NFS 1852.216-80 Task Ordering Procedure (Oct 1996), Task Order Progress Reports		7. Interrelationships (e.g., with other PIC-PC-01 Financial Management Reporting PIC-PC-03 Workload Reports; PIC-PR-05 Task Order Plan	

8. PREPARATION INFORMATION: The contractor shall prepare the deliverables as follows:

SCOPE: Provides contract performance summary status including analysis of cost, schedule, and technical performance.

CONTENT:

The contractor shall present a summary contract performance report at a quarterly PMR. PMRs shall address technical issues and accomplishments; provide analysis of cost and schedule performance, and include corrective action plan status as appropriate. PMR reports shall be consistent with PIC-PC-01 Financial Management Reporting; PIC-PC-03 Workload Reports; and PIC-PR-05 Task Order Plan. PMR reporting shall include subcontracts performance data for subcontracts that have the potential to impact the successful fulfillment of this contract.

Metrics

The contractor shall develop, maintain, and report contract performance metrics, which demonstrate progress against task order cost, schedule, safety, and technical performance objectives. NASA approved metrics shall reflect meaningful measures of contract performance, which demonstrate successful execution of task order requirements against appropriate performance objectives. NASA approved metrics shall also provide linkage to Program level metrics in the Management Information System.

Program Management Review Report

Program Management Review Reports shall include the following:

- **Contract Summary Performance Report** - Status of fiscal year contract level costs, schedule, and technical performance. Includes cumulative variance explanations (to fiscal year plan) and End-Of-Year trend variance explanations..
- **Task Order Summary Performance Report** - Status of fiscal year task order level costs, schedule, and technical performance.
- **Metric Performance Chart** - Status metrics plan, actual, variances.
- **Budget Performance Report** - Fiscal year costs and workforce summaries; status of fiscal year reserves, risks, and opportunities, and budget variance explanations.

FORMAT: Specific format to be tailored by the Contracting Officer and the contractor.

9. OPR: BG/Contracting Officer; OA/COTR

10. FIRST SUBMISSION DATE: The first Monthly input should support a review 20 working days after the initial financial month end.

Frequency of Submission: Quarterly: January (October – December data), April (January – March data), July (April – June data), and October (July – September data).

11. MAINTENANCE: Changes shall be incorporated as required by change page or complete reissue.

12. COPIES/DISTRIBUTION:

Hard Copies: 2 each BG/Contracting Officer
1 each OA/COTR
2 each LO

Program Authorized Repository Upload Notification: LW

Program Authorized Repository Upload Notification: OH3/Assessment Office

Program Authorized Repository Upload Notification: OH2/Data Management

Program Authorized Repository Upload Notification: LO

Program Authorized Repository Upload Notification: BG,OA, LO

1 electronic copy: Program secure repository

13. REMARKS: None

DATA REQUIREMENTS DESCRIPTION
(Based on JSC-STD-123)

1a. DRD Title: Certification of Flight Readiness (CoFR) Plan	2. Date of Current Version	3a. DRD No. PIC-PM-03	3b. RFP/Contract No. Final RFP NNJ09ZBG001R
1b. Data Type: 1			5. DRD Category <input type="checkbox"/> Administrative <input checked="" type="checkbox"/> Technical <input type="checkbox"/> SR&QA
4. Use (Define need for, intended use of, and/or anticipated results of data) To provide a management approach and implementation plan for Certification of Flight Readiness (CoFR) endorsement			
6. References (SOW, Clause, etc.) SOW 1.1.1.1.4 SSP 50108		7. Interrelationships (e.g., with other DRDs)	

8. PREPARATION INFORMATION: The Contractor shall prepare the data delivery as follows:

SCOPE: The plan shall describe the management approach and planned implementation methods for accomplishing the contractor's CoFR responsibilities and requirements of the contract.

CONTENT: Address all Contractor responsibilities for preparing for the CoFR endorsement in accordance with SSP 50108. The CoFR Plan must address relationship to NASA counterparts and the division of responsibility for the CoFR endorsement activities.

FORMAT: Electronic

9. OPR: COTR

10. FIRST SUBMISSION DATE: Draft within 30 days after contract award. Final within 60 days from contract start.

Frequency of Submission: Annually, as required.

Additional Submissions: Update as required. If there are no changes since the last update, the Contractor shall re-certify the CoFR Plan accuracy NLT 1 October of each fiscal year.

11. MAINTENANCE: Changes to the plan shall be incorporated as required by change page or complete reissue. Changes to Flight Readiness Status and Endorsements shall be made as required. The Contractor shall maintain a historical file of Flight Readiness Status.

12. COPIES/DISTRIBUTION:

Program Authorized Repository Upload Notification: OH2/Data Management

Program Authorized Repository Upload Notification: COTR

1 electronic copy: Program Authorized Repository

13. REMARKS: None

DATA REQUIREMENTS DESCRIPTION
(Based on JSC-STD-123)

1a. DRD Title: Patent Rights-Retention	2. Date of Current Version	3a. DRD No. PIC-PR-01	3b. RFP/Contract No. Final RFP NNJ09ZBG001R
1b. Data Type: 2			5. DRD Category <input type="checkbox"/> Technical <input checked="" type="checkbox"/> Administrative <input type="checkbox"/> SR&QA
4. Use (Define need for, intended use of, and/or anticipated results of data) Identification of any subject inventions including information on patent applications and related filings.			
6. References (SOW, Clause, etc.) NFS Clause 1852.227-11		7. Interrelationships (e.g., with other DRDs)	

8. PREPARATION INFORMATION: The Contractor shall prepare the deliverable as follows:

SCOPE: Inventions by the Contractor as part of their performance on this government contract.

CONTENT: The content of the deliverable shall include:

- A. A listing every twelve (12) months of all subject inventions required to be disclosed during the period.
- B. A final report prior to closeout of the contract listing all subject inventions or certifying that there were none.
- C. Upon request, the filing date, serial number and title, a copy of the patent application, and patent number and issue date for any subject invention in any country in which the Contractor has applied for patents.

FORMAT: The electronic or paper version of NASA form 1679, Disclosure of Invention and New Technology (Including Software) to disclose subject Invention

9. OPR: BG

10. FIRST SUBMISSION DATE: 12 months after contract start

Frequency of Submission: Once a year

Additional Submissions: Final report at contract closeout.

11. MAINTENANCE: Updated annually by the Contractor and submitted in printed form.

12. COPIES/DISTRIBUTION:

Program Authorized Repository Upload Notification: OH2/Data Management

Program Authorized Repository Upload Notification: BG

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13. REMARKS: None

DATA REQUIREMENTS DESCRIPTION
(Based on JSC-STD-123)

1a. DRD Title: Contract Close-out Plan	2. Date of Current Version	3a. DRD No. PIC-PR-02	3b. RFP/Contract No. Final RFP NNJ09ZBG001R
1b. Data Type: 1		4. Use (Define need for, intended use of, and/or anticipated results of data) Manage and control contract close-out.	
5. DRD Category <input type="checkbox"/> Technical <input checked="" type="checkbox"/> Administrative <input type="checkbox"/> SR&QA			
6. References (SOW, Clause, etc.) RFP Clause F.6		7. Interrelationships (e.g., with other DRDs)	

8. PREPARATION INFORMATION: The Contractor shall prepare the deliverable as follows:

SCOPE: This plan shall provide the details necessary to transition the contract to any follow-on contract and to close out the existing contract.

CONTENT: The content of the deliverables shall include:

- A. Implementation Strategy
- B. Task description and schedule
- C. Staffing profile
- D. Cost Estimate

FORMAT: Contractor's format is acceptable

9. OPR: BG

10. FIRST SUBMISSION DATE: Six months prior to the end of the contract

Frequency of Submission: Once

Additional Submissions: N/A

11. MAINTENANCE: Electronically.

12. COPIES/DISTRIBUTION:

1 copy (electronic): Program authorized repository

Program Authorized Repository Upload Notification: OH2/Data Management for distribution to Contracting Officer and COTR

Program Authorized Repository Upload Notification: BG

13. REMARKS: None

DATA REQUIREMENTS DESCRIPTION

(Based on JSC-STD-123)

1a. DRD Title: Wage/Salary and Fringe Benefit Data	2. Date of Current Version	3a. DRD No. PIC-PR-03	3b. RFP/Contract No. NNJ09BG18B
1b. Data Type: 3		4. Use (Define need for, intended use of, and/or anticipated results of data) The Wage/Salary and Fringe Benefit Data will be used by the NASA Contracting Officer and the Contract Labor Relations Office to provide the necessary data for submittal of Standard Form (SF) e-98, Notice of Intention to Make a Service Contract and Response to Notice, to the Department of Labor, and to assist in the monitoring of Service Contract Act compliance.	
5. DRD Category <input type="checkbox"/> Technical <input checked="" type="checkbox"/> Administrative <input type="checkbox"/> SR&QA		6. References (SOW, Clause, etc.) FAR 52.222-41, Service Contract Act of 1965, As Amended	
7. Interrelationships (e.g., with other DRDs) FAR 52.222-41			

8. PREPARATION INFORMATION: The Contractor shall prepare the deliverable as follows:

SCOPE: The Wage/Salary and Fringe Benefit Data must be submitted by the Contractor, and any subcontractors which are subject to the provisions of the Service Contract Act, to the Contracting Federal Agency. This requirement is in accordance with FAR regulations 22.1007 and 22.1008.

CONTENTS: The Wage/Salary and Fringe Benefit Data should contain the data included in the enclosed DRD forms, titled "Wage/Salary Rate Information," "Fringe Benefit for Service Employees," and "Fringe Benefits per Collective Bargaining Agreement." The Wage/Salary Rate Information shall contain a listing of all exempt and nonexempt labor classifications working on the contract. Separate forms should be utilized for classifications working in different geographic areas and for each subcontractor. Wage determination numbers, appropriation labor organization names, and subcontractor names, must be reflected. All nonexempt labor classifications must be matched to wage determination classes or to Collective Bargaining Agreement (CBA) classifications if union represented employees are working on the contract. Annotate exempt or nonexempt and union or nonunion. The current hourly rates should reflect the actual lowest and highest paid employees, along with a computed average rate. State the number of employees working in each category. Separate Fringe Benefit forms should be completed for non-represented classifications and for each separate CBA, if applicable. A separate form must be completed for the prime and each subcontractor. Three hardcopies and one electronic copy of each Collective Bargaining Agreement are required if organized labor is represented on your contract.

FORMAT: The Wage/Salary and Fringe Benefit Data should be in a format substantially the same as enclosed with this DRD (Forms 2, 3A, 3B, 3C and 4).

9. OPR: BA

10. FIRST SUBMISSION DATE: Thirty (30) days after contract award.

Frequency of Submission: Annually, 90 days prior to the anniversary date of the contract.

Additional Submission: N/A

11. MAINTENANCE: Changes shall be incorporated as required by change page or complete reissue.

12. COPIES/DISTRIBUTION:

Program Authorized Repository Upload Notification: OH2/Data Management

Program Authorized Repository Upload Notification: CO

Program Authorized Repository Upload Notification: COTR

Program Authorized Repository Upload Notification: ~~BA2/Contract Labor Relations Officer~~

1 copy: BG/Contracting Officer

13. REMARKS: Sample Work Sheet

Attachment to PIC-PR-03
FORM 2
PAGE 1 OF 1

WORK SHEET FOR SF-98 DATA					
WAGE RATE INFORMATION					
CONTRACTORS LABOR	WAGE DETERMINATION	EXEMPT OR NON EXEMPT	UNION OR NON UNION	CURRENT HOURLY RATE	MYE NO OF
CLASSIFICATION	CLASSIFICATION				EMPLOYEES
Illustration of required data:					
Project Manager	Not Required	E	N	\$40.00	1
Supervisor	Not Required	E	N	\$32.00	1
Electrical Engineer	Not Required	E	N	\$26.50 - \$30.00	3
Engineer Technician, Jr	Engineering Tech, I	N	N	\$16.59 - \$18.00	12
Engineer Technician, Sr	Elect Tech Main II	N	U	\$23.28 - \$24.00	4
Secretary	Secretary I	N	N	\$15.92 - \$17.50	2
File Clerk	General Clerk II	N	N	\$12.97	1
Clerical Data Entry	Word Processor I	N	N	\$12.27 - \$12.90	3

Submit data in the above illustrated format for all labor classifications used, or planned to be used, on this contract.

All nonexempt labor classifications must be matched to wage determination classes listed in the area wage determination or applicable collective bargaining agreement.

(Continue on a blank page if necessary)

FRINGE BENEFITS FOR SERVICE EMPLOYEES

For Period from _____ to _____

Contractor:

Number of nonexempt employees on contract: _____

Total number of employees on contract: _____

1. Health and Welfare Items and Other Fringe Items:
(Indicate whether or not coverage is provided to employees and state current average hourly cost per service employee.)

<u>Item</u>	<u>Coverage Provided</u>	<u>Average Hourly Cost</u>
a. Life Insurance		
b. Accidental Death		
c. Disability		
d. Medical & Hospital		
e. Dental		
f. Retirement Plan		
g. Savings/Thrift Plan		
h. Sick Leave		
i. Tuition Reimbursement		
j. Other (Describe)		

2. Paid Absences

Service Requirement Days per Year

- a. Vacation
- b. Holidays
- c. Sick Leave
- d. Jury Leave
- e. Funeral Leave
- f. Military Leave
- g. Other (Describe)

Signature of Company Representative

Date

(Continue on a blank page if necessary)

FRINGE BENEFITS FOR EXEMPT EMPLOYEES

For Period from _____ to _____

Contractor:

Number of exempt employees on contract: _____

Total number of employees on contract: _____

1. Health and Welfare Items and Other Fringe Items:
(Indicate whether or not coverage is provided to employees and state current average hourly cost per service employee.)

<u>Item</u>	<u>Coverage Provided</u>	<u>Average Hourly Cost</u>
a. Life Insurance		
b. Accidental Death		
c. Disability		
d. Medical & Hospital		
e. Dental		
f. Retirement Plan		
g. Savings/Thrift Plan		
h. Sick Leave		
i. Tuition Reimbursement		
j. Other (Describe)		

2. Paid Absences

	<u>Service Requirement</u>	<u>Days per Year</u>
a. Vacation		
b. Holidays		
c. Sick Leave		
d. Jury Leave		
e. Funeral Leave		
f. Military Leave		
g. Other (Describe)		

Signature of Company Representative

Date

(Continue on a blank page if necessary)

FRINGE BENEFITS PER COLLECTIVE BARGAINING AGREEMENT

For period from _____ to _____

Contractor:

Contract Number:

Number of employees in bargaining unit _____

Total number of employees on contract _____

1. Shift Differential: (Describe any pay over and above base rates for 2nd, 3rd, weekend, or other shifts.)

2. Health and Welfare Items and Other Fringe Items: (Indicate whether or not coverage is provided to employees and state current average hourly cost per employee covered by a Collective Bargaining Agreement.)

Item	Coverage Provided (Yes or No)	Average Hourly Cost
a. Life Insurance		
b. Accidental Death		
c. Disability		
d. Medical and Hospital		
e. Dental		
f. Retirement Plan		
g. Savings/Thrift Plan		
h. Sick Leave		
i. Tuition		
j. Other (Describe)		

(Continue on a blank page if necessary)

FORM 3C
Page 2 of 2

3. Paid Absences:

	Service Requirement	Days per Year
--	---------------------	---------------

- | | | |
|---------------------|--|--|
| a. Vacation | | |
| b. Holiday | | |
| c. Sick Leave | | |
| d. Jury Leave | | |
| e. Funeral Leave | | |
| f. Military Leave | | |
| g. Other (Describe) | | |

4. Severance Pay: (Briefly describe terms and amounts.)

5. Other Fringe Benefits: (Describe any other fringe benefits not included above, and show average hourly cost.)

6. Premium Pay: (Discuss all premium pay provisions not previously shown on this form.)

Signature of Company Representative

Date

(Continue on a blank page if necessary)

FORM 4
Page 1 of 1

DESCRIPTION OF FRINGE BENEFITS				FORM 4
<input type="checkbox"/> Prime Contractor: <input type="checkbox"/> Major Subcontractor:				
DESCRIPTION	EXEMPT	NON-EXEMPT	Ref.	
Insurance (Life)				
Insurance (Health) (Employee/Company Share)				
Insurance (Dental, Disability, Etc.)				
Retirement				
Severance Pay				
Personal Leave				
Sick Leave				
Vacation				
Holidays				
Special Workweek				
Overtime Policy				
Uncompensated Overtime				
Pension Portability				
Pay Differentials Policy Shift Off-site				
Compensatory Leave Policy				
Award Policy Suggestion Other				
Bonus Plan				
Training				
Employee Morale				

(Continue on a blank page if necessary)

DATA REQUIREMENTS DESCRIPTION

(Based on JSC-STD-123)

1a. DRD Title: Data Reprourement Package	2. Date of Current Version	3a. DRD No. <p style="text-align: center;">PIC-PR-04</p>	3b. RFP/Contract No. Final RFP NNJ09ZBG001R
1b. Data Type: 2		5. DRD Category <input checked="" type="checkbox"/> Technical <input type="checkbox"/> Administrative <input type="checkbox"/> SR&QA	
4. Use (Define need for, intended use of, and/or anticipated results of data) Provide content and format requirements for delivery to NASA of all analytical models, tools, supporting documentation, equipment and resource/cost information used to perform future reprourement activities. Note: This data may be disclosed to competing offerors in the future		7. Interrelationships (e.g., with other DRDs)	
6. References (SOW, Clause, etc.) Section H.12			

8. PREPARATION INFORMATION: The Contractor shall prepare the deliverable as follows:

SCOPE: Analytical models, unique tools, supporting documentation, equipment and resource/cost information shall be submitted in accordance with this DR.

CONTENTS:

- A. A catalog of models and tools provided according to any DR on this contract shall be developed which contains the following:
 - 1) Unique name of item,
 - 2) Version number, revision number, or release date as appropriate,
 - 3) Abstract which describes purpose or use of item,
 - 4) Location of electronic copy.
- B. Models and tools to be submitted include:
 - 1) Models which are delivered per requirements contained in any other DR on this contract shall not be redelivered for this DR. However, each shall still be documented appropriately.
- C. Supporting documentation for the use of each item, including those submitted per other DRDs on this contract where that DRD doesn't require it, shall be submitted. The documentation shall include, at a minimum, the following information:
 - 1) Purpose of the model or tool;
 - 2) Inputs required;
 - 3) Governing assumptions or constraints, including definition of the Vehicle configuration if pertinent to the model definition or its use;
 - 4) Model or tool certification history, including description of validation methods used and results of correlation activities;
 - 5) Association with other models, such as connection between an integrated ISS model and a supporting element model;

- 6) For models, necessary tools such as a specific software modeling environment required to operate the model;
 - 7) For tools, necessary platforms such as computer processor requirements or operating system limitations.
- D. Data package containing the following:
- 1) Labor resources.
- E. List of all direct labor skills by labor category, segregated by current work breakdown structure (WBS).
- F. An estimate of the number of indirect labor skills such as business or computer support normally charged through an indirect expense pool or through a service center expense.
- G. Current annual average wage rates for each labor category and when these wages were last adjusted for escalation. Also indicate whether any adjustments are projected to be made prior to contract expiration.
- H. The number of Work Year Equivalents (WYEs) and the estimated number of productive hours for each labor category currently on contract, segregated by current WBS.
- I. Seniority level of all skills on the current contract:
- 1) Non-labor resources.
- J. List of all materials, equipment, travel, supplies, etc., and the incurred annual cost by WBS.
- K. Provide a discussion associated with the major items identified above, such as the materials estimate includes a prompt payment discount of TBD% due to large volume discounts you have negotiated with your vendors.
- 1) The projected liability cost associated with unused accrued paid leave associated with non-exempt personnel. Provide a copy of any Collective Bargaining Agreements in place and a current status of any upcoming negotiations with a union.
 - 2) Equipment (additional information to that listed in #2, a., above):
List of all contractor-owned equipment (at the time of delivery of this DRD) being used in the performance of the contract. The list of equipment shall include:
 - (a) Description of the equipment (include make and model #),
 - (b) Location of the equipment (address, building and room #),
 - (c) Date purchased,
 - (d) Purchase price of the equipment,
 - (e) Current depreciated value of the equipment.

FORMAT: Electronic

9. OPR: COTR

10. FIRST SUBMISSION DATE: 1 year prior to contract end or at the CO's direction.

Frequency of Submission: No periodic submissions required per this DR (this does not relieve the requirement for periodic or incremental deliveries per other DRs).

Additional Submissions: End of period of performance: submission of current version of all models, tools, and supporting documentation which have been updated since first submission

11. MAINTENANCE: All models/tools shall be maintained electronically. All documentation developed to support the use of each model/tool shall also be maintained electronically. Both the models and the supporting documentation shall be updated as necessary to perform the assessments for which they were developed.

12. COPIES/DISTRIBUTION:

Program Authorized Repository Upload Notification: OH2/Data Management

Program Authorized Repository Upload Notification: COTR

1 electronic copy: Program Authorized Repository

13. REMARKS: It is only intended that unique models and tools developed for the ISS Program be delivered per this DRD. Unmodified commercially available tools should not be delivered, but must be referenced in the supporting documentation.

DATA REQUIREMENTS DESCRIPTION

(Based on JSC-STD-123)

1a. DRD Title: Task Order Plan	2. Date of Current Version	3a. DRD No. PIC-PR-05	3b. RFP/Contract No. Final RFP NNJ09ZBG001R
1b. Data Type: 3			
4. Use (Define need for, intended use of, and/or anticipated results of data) Provide content and format requirements for task order negotiations.			5. DRD Category <input checked="" type="checkbox"/> Technical <input type="checkbox"/> Administrative <input type="checkbox"/> SR&QA
6. References (SOW, Clause, etc.) Section H, Clause H.3 NFS 1852.216-80 Task Ordering Procedure		7. Interrelationships (e.g., with other DRDs) PIC-PM-02 Program Management Review Products; PIC-PC-01 Financial Report; PIC PC-06 Program Schedules	

8. PREPARATION INFORMATION: The contractor shall prepare the deliverable as follows:

SCOPE: Task order plans shall be submitted to the Contracting Officer for the negotiation and definitizing of task orders in accordance with this DRD and NFS 1852.216-80, Task Ordering Procedure.

CONTENTS: The contractor shall develop and maintain a task order plan that documents the reasonableness of the contractor task order proposals and/or revisions.

I. INTRODUCTION

The purpose of the task order plan is to identify the technical approach, period of performance, resource and schedule requirements, and other information necessary to determine the reasonableness of the contractor's task order proposal.

A. BASIS-OF-ESTIMATE (BOE)

The contractor shall develop a task order BOE which shall document the reasonableness of the contractor's task order proposal. The BOE shall identify the technical approach, task scope, assumptions, exclusions, and cost risks and opportunities. The BOE may also reference agreements with the customer if the proposed effort was developed on a partnered basis. The BOE shall identify the resources needed to accomplish the proposed scope of work including:

1. Identify specific labor resources, supporting rationale, and technical approach to meet task order labor requirements.
2. Identify direct labor resources by breakdown structure (WBS) including types and quantities of proposed labor resources. Note: Proposed labor categories shall be consistent with Clause B.4 – Indefinite Delivery/Indefinite Quantity Orders.
3. Identify proposed resources by WBS including loaded labor rates, materials, travel, other direct costs/price, and subcontractor cost/price.
4. Identify threats or constraints that may require work scope restructure or reassessment of the resource-loading requirements.

Task order BOE shall be maintained throughout the task order period of performance without revision. Proposed changes to the BOE will be consistent with the above requirements. Historical BOE pricing data shall be maintained by the contractor, and shall be used to develop the resource baseline of future task orders.

B. "B. TIME-PHASED RESOURCE SCHEDULE (TPRS)

The contractor shall develop and maintain time-phased resource schedules for each task order consistent with the approved task order basis-of-estimate. TPRSs shall identify resources - direct labor (standard labor category), travel, materials, and G&A - associated with each task order deliverable and/or major milestone. TPRS will be used to measure resource usage, report progress toward project objectives, and forecast future schedule performance. TPRS shall include the following:

1. Period of performance including start and end dates.
2. Task order deliverables and major milestones.
3. Time-phased resources for task order deliverables and major milestones.
4. Revisions to resource baseline, as necessary.

Note: All performance and variance analysis reporting shall be traceable to the TPRS. (Reference PIC-PM-02 Program Management Review and PIC-PC-01 Financial Report)

C. ADDITIONAL INFORMATION

The Contracting Officer may require the contractor to provide additional information to determine the reasonableness of the contractor's task order proposals.

FORMAT: Hard Copy / Electronic - NASA Standard Load (Note: Alternate contractor formats will be considered)

9. OPR: BG/ Contracting Officer

10. FIRST SUBMISSION DATE: Initial submittal due within 1 week of request; final due within 30 days of task order definitization; and with each task order revision.

11. MAINTENANCE: The document shall be delivered and maintained electronically and in the official contract file. Changes shall be incorporated as required by change pages or complete reissue.

12. COPIES/DISTRIBUTION:

"1 each hard copy and electronic copy:
BG/Contracting Officer/Contract Specialist
COTR
OH2/Data Management
LO"

13. REMARKS:

DATA REQUIREMENTS DESCRIPTION
(Based on JSC-STD-123)

1a. DRD Title: Mission Assurance and Risk Management (MA&RM) Plan	2. Date of Current Version	3a. DRD No. PIC-SA-01	3b. RFP/Contract No. Final RFP NNJ09ZBG001R
1b. Data Type: 1 4. Use (Define need for, intended use of, and/or anticipated results of data) The plan is used to identify the Contractor processes for establishing and maintaining a Quality Management System (QMS), S&MA integration function, Risk Management and meeting quality assurance requirements.			5. DRD Category — Technical — Administrative X S&MA/PR
6. References (SOW, Clause, etc.) SOW 6.1.1		7. Interrelationships (e.g., with other DRDs)	

8. PREPARATION INFORMATION: The Contractor shall prepare the deliverable as follows:

SCOPE: Applicable to all NASA Centers and sites where the Contractor is operational.

CONTENT: The plan shall demonstrate the Contractor's compliance with Section 6.0 of the SOW:

- A. S&MA Management (SOW 6.1) - Description of the Contractor's processes for establishing and maintaining a quality records system in accordance with SSP 41173 and SAE AS9100, a Quality Management System in accordance with SAE AS9100, Mishap Investigation and Reporting in accordance with NPR 8621.1.
- B. S&MA Integration (SOW 6.2) - Description of the Contractor's process for developing and maintaining S&MA requirements in IP agreements, identifying and resolving issues affecting S&MA, and coordinating and facilitating S&MA review of change requests.
- C. Program Risk (SOW 6.3) - Description of the Contractor's process for compliance with SSP 50175, NPR 8000.4, JPD 306, JPD 328, NPR 8705.4 and NPR 8705.5.
- D. Quality Assurance (SOW 6.6) - Description of the Contractor's processes for compliance with SAE AS9100, SSP 41173, SSP 30695, SSP 50287, SSP 30223 and SSP 30524 for both hardware and software.

FORMAT: Electronic

9. OPR: OE

10. FIRST SUBMISSION DATE: Draft MA&RM plan by the end of the phase-in period. Final MA&RM plan within 90 days after contract start.

Frequency of Submission: The MA&RM plan shall be reviewed at least annually thereafter and updated as required.

Additional Submissions: If there are no changes since the last update, the Contractor shall re-certify its accuracy NLT 1 October of each year.

11. MAINTENANCE: The document shall be delivered and maintained electronically. Changes shall be incorporated as required by change page or complete reissue.

12. COPIES/DISTRIBUTION:

Program Authorized Repository Upload Notification: OH2/Data Management
Program Authorized Repository Upload Notification: OE
1 electronic copy: Program Authorized Repository

13. REMARKS: The MA&RM Plan requires approval of the Manager, S&MA/Program Risk Office.

DATA REQUIREMENTS DESCRIPTION
(Based on JSC-STD-123)

1a. DRD Title: Safety and Health (S&H) Plan	2. Date of Current Version	3a. DRD No. PIC-SA-02	3b. RFP/Contract No. Final RFP NNJ09ZBG001R
1b. Data Type: 1 4. Use (Define need for, intended use of, and/or anticipated results of data) The plan is used to establish Safety, Health, and Environmental Compliance for the contractor in meeting NASA and OSHA Standards.			5. DRD Category — Technical — Administrative X S&MA/PR
6. References (SOW, Clause, etc.) SOW 6.1.4 OSHA CSP 03-01-003, Voluntary Protection Program (VPP): Policies and Procedures Manual JSC 17773, Instructions for Preparation of Hazard Analysis for JS Ground Operations JPR 1700.1 JSC Safety and Health Handbook		7. Interrelationships (e.g., with other DRDs) Safety and Health Program Self-Evaluation Monthly Safety and Health Metrics	

8. PREPARATION INFORMATION: The Contractor shall prepare the deliverable as follows:

SCOPE: Applicable to safety and health activity at all NASA Centers and sites where the Contractor is operational under this contract.

CONTENT: The requirements for this plan as detailed in the instructions on plan content below include instructions for specific reports and data to be submitted to the Government. These instructions are to be included in the plan and represent contractual commitments by the Contractor to provide this information.

FORMAT:

A. Cover page - to include as a minimum, blocks for the signatures of Contractor's project manager and designated safety official; NASA COTR; JSC Safety and Test Operations Division: JSC Occupational Health Officer; and the NASA Contracting Officer. Other signatures may be required at the discretion of the Government. Once approved by NASA, signatures will be collected and the plan placed on the contract.

B. Table of Contents. See content below.

- C. Body of plan - as required. Contractor's format is acceptable but should be aligned with the elements of the content below.
- D. When preparing its plan, the Offeror/Contractor is expected to review all the items below and tailor its plan accordingly. The plan will clearly identify those resources to be provided by the Contractor and proposed resources to be provided by the Government. This review and supporting rationale is to be made available to the Government as part of this plan. It can be documented as a checklist or outline, inserted directly in the body of the plan, or in any format developed by the Contractor that clearly conveys the results of this review including the basis for any underlying assumptions.

Details:

1. MANAGEMENT LEADERSHIP AND EMPLOYEE PARTICIPATION

- 1.1 Policy: Provide the Contractor's safety and health compliance policy statement with the plan. Compare the Contractor's policy statement with those of NASA and OSHA and discuss any differences.
- 1.2 Goals and Objectives. Describe your approach to the following:
 - 1.2.1 Specific annual safety and health goals and objectives to be met.
 - 1.2.2 Methods to be used, if any, to improve on the Days Away Case Rate (DACR), the Total Recordable Injury Rate (TRIR), and the total Days Away plus Restricted Duty plus Job Transfer (DART).
- 1.3 Management Leadership. Describe management's procedures for implementing its sustaining commitment to safety and health compliance through visible management activities and initiatives including a commitment to exercise management prerogatives to ensure workplace safety and health. Describe processes and procedures to making this visible in all Contract and subcontract activities and products. Include a statement from the project manager or designated safety official indicating that the plan will be implemented as approved and that the project manager will take personal responsibility for its implementation.
- 1.4 Employee Involvement. Describe procedures to promote, implement, and sustain employee (e.g., non-supervisory) involvement in safety and health compliance program development, implementation and decision-making. Describe the scope and breadth of employee participation to be achieved so that approximate safety and health risk areas of the Contract are equitably represented. Describe methods to be used to obtain employee buy in and address the behavioral aspects of safety.
- 1.5 Assignment of Responsibility. Describe line and staff responsibilities for safety and health program implementation. Identify any other personnel or organization that provides safety services or exercises any form of control or assurance in these areas. State the means of communication and interface concerning related issues used by line, staff, and others (such as documentation, concurrence requirements, committee structure, sharing of the work site with NASA and other Contractors, or other special responsibilities and support). As a minimum, the Contractor will identify the following:
 - 1.5.1 Safety Representative - identify by title, the individual who will be trained and certified in accordance with JPR 1700.1 to be responsive to Center-wide safety, health and fire protection concerns and goals, and who will participate in meetings and other activities related to the JSC Safety and Health program.
 - 1.5.2 Company Physician/Occupational Injury/illness case manager - identify a point of contact who is responsible for the transfer or receipt of company medical data and who will be the primary contact for the company in the event any employee suffers a work related injury or illness (such as the company physician) by name, address, and telephone number to the JSC Occupational

Medicine Clinic, mail code SD32. This will facilitate communication of medical data to Contractor management. Prompt notification to the JSC Occupational Medicine Clinic shall be given of any changes that occur in the identity of the point of contact.

- 1.5.3 Building Fire Wardens - provide a roster of fire wardens at the start of each Contract year (their names, telephone numbers and pagers, and mail codes). Contractor fire wardens are needed to facilitate the JSC fire safety program, including coordination of related issues with NASA facility managers and emergency planning and response officials and their representatives. Fire wardens will be trained in accordance with JPR 1700.1. The Roster shall be maintained by letter to the JSC Safety and Test Operations Division, mail code NS2, with copies to the Contracting Officer and the Contracting Officers Technical Representative. The initial letter shall be received by the Government not later than 15 days after contract start.
- 1.5.4 Designated Safety Official - identify by title the official(s) responsible for implementation of this plan and all formal contacts with regulatory agencies and with NASA.
- 1.6 Provision of Authority. Describe consistency of the plan for compliance with applicable NASA and JSC requirements and contractual direction as well as applicable Federal, State, and Local regulations and how compliance will be maintained throughout the life of the contract.
- 1.7 Accountability. Describe procedures for ensuring that management and employees will be held accountable for implementing their tasks in a safe, healthful, and environmentally compliant manner. The use of traditional and/or innovative personnel management methods (including discipline, motivational techniques, or any other technique that ensures accountability) will be referenced as a minimum and described as appropriate.
- 1.8 Program Evaluation. Describe your approach to safety and health program evaluation. The program evaluation consists of:
 - 1.8.1 [RESERVED]
 - 1.8.2 A written self-evaluation report to be delivered once per year. The self evaluation shall be provided for the Contractor performance evaluation. The self-evaluation shall follow the VPP program evaluation report format found in OSHA CSP 03-01-003, Voluntary Protection Program (VPP): Policies and Procedures Manual, Appendix C, "Format for Annual Submissions", as mandated by the cognizant OSHA regional office. Contractors who have submitted a written self-evaluation as a VPP site may submit their original report to OSHA in lieu of writing a new self-evaluation provided that all action plans and status are updated. The self-evaluation shall as a minimum cover the elements of the approved safety and health plan.
- 1.9 Miscellaneous Reports. The Contractor will acknowledge the following as standing requests of the Government and to be handled as described below.
 - 1.9.1 Roster of Terminated Employees. Identify personnel terminated by the contractor. Send to the JSC Occupational Health Officer, no later than 30 days after the end of each contract year. At the contractor's discretion, the report may be submitted for personnel changes during the previous year or cumulated for all years. Information required:
 - a. Date of report, Contractor identity, and Contract number.

- b. For each person listed, provide name, social security number, and date of termination.
- c. Name, address, and telephone number of Contractor representative to be contacted for questions or other information.

1.9.2 Material Safety Data Sheets (MSDS). The Contractor shall prepare and/or deliver MSDS for hazardous materials brought onto Government property or included in products delivered to the Government. This data is required by the Occupational Safety and Health Administration (OSHA) regulation, 29 CFR 1910.1200, "Hazard Communication", EPA "Emergency Planning and Community Right-to-Know (EPCRA, ref. 40 CFR 302, 311, 312); and the Texas Department of Health (TDH, ref. Chapters 505-507 of the Health and Safety Code), and Federal Standard 313 (or FED-STD-313), "Material Safety Data, Transportation Data and Disposal Data for Hazardous Materials Furnished to Government Activities", as revised. This inventory is also required by JPR 1700.1, "JSC Safety and Health Handbook", as revised. 1 copy of each MSDS will be sent upon receipt of the material for use on NASA property to the JSC Central MSDS Repository, maintained by the JSC Occupational Medicine Occupational Health contractor, along with information on new or changed locations and/or quantities normally stored or used. If the MSDS arrive with the material and is needed for immediate use, the MSDS shall be delivered to the Central MSDS Repository by close of business of the next working day after it enters the site.

1.9.3 Hazardous Materials Inventory. The Contractor shall compile an inventory report of all hazardous materials it has located on Government property quarterly, and which is within the scope of 29 CFR 1910.1200, "Hazard Communication"; and Federal Standard 313 (or FED-STD-313), "Material Safety Data, Transportation Data and Disposal Data for Hazardous Materials Furnished to Government Activities", as revised. This inventory is also required by JPR 1700.1, "JSC Safety and Health Handbook", as revised. The call for this inventory and instructions for delivery will be issued by the JSC Occupational Medicine Occupational Health contractor, mail code SD33. This information shall use the format used by JSC for chemical inventory compilation to provide the following:

- a. The identity of the material (product number, chemical, manufacturer, and NSN as available).
- b. The location of the material by building, room and area/cabinet number.
- c. The quantity of each material normally kept at each location (number of containers, container size, type container, unit of measure, conversion factor, storage temp and pressure, physical state/form, specific gravity, total pounds).
- d. Peak quantity stored.
- e. Actual or estimated rate of annual usage of each chemical.

1.10 Government Access to Safety and Health Program Documentation. The Contractor shall recognize, in its plan, that all safety and health documentation (including relevant personnel records) be available for inspection or audit at the Government's request. Electronic access by the Government to this data is preferred as long as Privacy Act requirements are met and Government safety and health professionals and their representatives have full and unimpeded access for review and audit purposes. For Contractor activities conducted on NASA property,

the Contractor will identify what records will be made available to the Government in accordance with the criteria of OSHA as implemented in JPR 1700.1, "JSC Safety and Health Handbook", as revised. For the purpose of this plan, safety and health documentation includes but is not limited to: logs, records, minutes, procedures, checklists, statistics, reports, analyses, notes, or other written or electronic document which contains in whole or in part any subject matter pertinent to safety, health, or emergency preparedness.

- 1.11 Review and Modification of Safety Requirements. The Contractor may be requested to participate in the review and modification of safety requirements that are to be implemented by the Government including any referenced documents therein. This review activity will be implemented at the direction of the NASA Contracting Officer's Technical Representative (COTR) in accordance with established contractual procedures.
- 1.12 Procurement. Identify procedures used to assure that procurements are reviewed for safety and health compliance considerations and that specifications contain appropriate safety criteria and instructions. Set forth authority and responsibility to assure that safety tasks are clearly stated in subcontracts.
- 1.13 Certified Professional Resources. Discuss your access to certified professional resources for safety and health protection. Discuss their roles in motivation/awareness, worksite analysis, hazard prevention and control, and training.

2. WORKSITE ANALYSIS

- 2.1 Analysis of Worksite Hazards. Contractor worksite hazards shall be systematically identified through a combination of surveys, analyses, and inspections of the workplace, investigations of mishaps and close calls, and the collection and trend analysis of safety and health data such as: records of occupational injuries and illnesses, findings and observations from preventive maintenance activities, facilities related incidents related to partial or full loss of systems functions; etc. Describe how hazards identified by any of the techniques identified below shall be ranked, processed, and mitigated in accordance with JPR 1700.1. All hazards on NASA property, which are immediately dangerous to life or health, shall be reported immediately to the Safety and Test Operations Division. All safety engineering products that address operations, equipment, etc., on NASA property will be subject to JSC Safety and Test Operations Division review and concurrence unless otherwise waived by the JSC Safety and Test Operations Division.
- 2.2 Industrial Hygiene. Describe your industrial hygiene program and how it will be coordinated with the JSC Government provided resources for industrial hygiene. In the event corporate resources are used to determine workplace exposures, copies of all monitoring data shall be provided to JSC Occupational Medicine Occupational Health contractor within 15 days of receipt of results.
- 2.3 Hazard Identification. Describe the procedures and techniques to be utilized to compile an inventory of hazards associated with the work to be performed on this Contract. This inventory of hazards shall address the work specified in this Contract as well as operations and work environments in the vicinity or in close proximity to Contract operations. The results will be reported to the Government in a manner suitable for inclusion in facilities baseline

documentation as a permanent record of the facility. Specific techniques to be considered include:

- 2.3.1 Comprehensive Survey - A "wall to wall" engineering assessment of the Contractor's worksite, which includes the Government furnished facilities to be used by the contractor and the immediate vicinity in which contractual work or tasks will be performed. This assessment encompasses facilities, equipment, materials, and processes.
- 2.3.2 Change (Pre-use) Analysis - Typically addresses modifications in facilities, equipment, processes, and materials (including waste); and related procedures for operations and maintenance. Change analyses periodically will be driven by new or modified regulatory and NASA requirements.
- 2.3.3 Hazard Analysis - May address facilities, systems/subsystems, operations, processes, materials (including waste), and specific tasks or jobs. Analyses and report formats will be in accordance with JSC 17773, "Preparing of Hazard Analyses for JSC Ground Operations."
- 2.3.4 The Contractors safety plan will describe the flow of the findings of the comprehensive survey of hazards into hazard analyses and job hazard analyses and subsequently into controls such as design, operations, processes, procedures, performance standards, and training. The contractor will discuss its approach to notify NASA and other parties external to the contract work of its identified hazards and subsequent analyses and controls.
- 2.4 Inspections. Includes assignments, procedures, and frequency for regular inspection and evaluation of work areas for hazards and accountability for implementation of corrective measures. The Contractor will describe administrative requirements and procedures for control of regularly scheduled inspections for fire and explosion hazards. The Contractor has the option, in lieu of this detail, to identify policies and procedures with the stipulation that the results (including findings) of inspections conducted on NASA property or involving Government furnished property will be documented in safety program evaluations or the monthly Accident/Incident Summary reports. Inspections will identify:
 - a. Discrepancies between observed conditions and current requirements, and,
 - b. New (not previously identified) or modified hazards.
 - c. Use of JSC's Hazard Abatement Tracking System to manage hazards onsite at JSC (see paragraph 3.12 below).
- 2.5 Protective Equipment - Set forth procedures for obtaining, inspecting, and maintaining all appropriate protective equipment, as required, or reference written procedures pertaining to this subject. Set forth methods for keeping records of such inspections and maintenance programs.
- 2.6 Employee Reports of Hazards - Identification of methods to encourage employee reports of hazardous conditions (e.g., close calls) and analyze/abate hazards. The Contractor will describe steps it will take to create reprisal-free employee reporting with emphasis on management support for employees and describe methods to be used to incorporate employee insights into hazard abatement and motivation/awareness activities.

2.7 Accident and Record Analysis

2.7.1 Mishap Investigation – identification of methods to assure the reporting and investigation of mishaps including corrective actions implemented to prevent recurrence. The Contractor will describe the methods to be used to report and investigate mishaps on NASA property and on Contractor or third party property. The Contractor will describe its procedures for implementing immediate notification of NASA using the call tree in 2.7.1.a below. The use of the quick incident reports found at the lower center of the home page of the NASA Incident Reporting Information System (IRIS) at <https://nasa.ex3host.com/iris/newmenu/login.asp> and use of NASA forms as specified in JPR1700.1 or any alternate forms used by Contractor. The contingency plan will emphasize timely notification of NASA; preliminary and formal investigation procedures; exercise of jurisdiction over a mishap investigation involving NASA and other contractor personnel; preparation and submission of a formal report to NASA; follow up of corrective actions; communication of lessons learned to NASA; and solutions to minimize duplications in reporting and documentation including use of alternate forms, etc. The Contractor will discuss its procedures for immediate notification requirements for fires, hazardous materials releases, and other emergencies. The Contractor will include appropriate details to address the following:

Note: the NASA Form 1627 is not attached since it is a three part carbonless form not conducive to reproduction. This form is NOT available from JSC or NASA forms management; it can be obtained from the following link: <http://jschandbook.jsc.nasa.gov/>.

- a. The Contractor will include a mishap contingency plan as part of the Safety and Health Plan which meets the requirements of NPR 8621.1, NASA Procedural Requirement for Mishap and Close Call Reporting, Investigating, and Recordkeeping, and JPR 1700.1, JSC Safety and Health Handbook. The plan will identify the method of immediately notifying NASA in the advent of a type A or B mishap or C property damage mishap and close call with equivalent potential so NASA may take custody of the mishap scene and initiate its investigation as soon as it is safe following the mishap. The Contractor will immediately contact the JSC Safety and Test Operations Division at 281-483-1935 for guidance when a Type A or B mishap or Type C property damage mishap occurs in the course of performing work on a NASA Contract in whole or in part. The contingency plan will clearly identify the Government investigation as taking precedence over any contractor investigation.
- b. For Type C injuries and all lower level mishaps, the Contractor will perform its own investigation and submit a report to NASA in accordance with the requirements of NPR 8621.1. The Contractor will ensure that NASA is promptly notified of any Type D mishap so that NASA provides a civil servant to oversee the investigation in an ex officio capacity prior to start of any formal investigation. All initial reports and selected follow up reporting will be accomplished using IRIS.
- c. When a NASA investigation is required, witnesses will be identified and their names and contact information provided to NASA investigator but witness statement must be requested and collected by NASA. Such statements will be retained by the Government as part of the mishap file in accordance with NPR 8621.1.

- d. The Contractor will deliver to NASA mishap reports which shall include the data specified in NPR 8621.1 for the level of mishap. NASA approval and endorsements will be required as specified in NPR 8621.1 and included in the approved Safety and Health Plan.

2.7.2 Trend Analysis – Describe approach to performing trend analysis of data (occupational injuries and illnesses; facilities, systems, and equipment performance; maintenance findings; etc.). Discuss methods to identify and abate common causes indicated by trend analysis. In support of site-wide trend analysis to be performed by the Government, the Contractor will discuss method of providing data as follows.

- a. Accident/Incident Summary Report - The Contractor shall prepare and deliver Accident/Incident Summary Reports as specified on JSC Form 288, "Accident/Incident Statistics" as revised. All new and open mishaps, including vehicle accidents, incidents, injuries, fires, and close calls shall be described in summary form along with current status. Negative reports are also required monthly. Report frequency is monthly; date due is the 10th days of the month following each month reported. Report to be delivered to the JSC S & MA Directorate through the Safety and Test Operations Division, mail code NS2, by fax to 281-244-0426 or by attaching to an e-mail and transmitting to JSC-Safety-Report-Submittals@mail.nasa.gov.
- b. Log of Occupational Injuries/Illnesses
 - i. For each establishment on and off NASA property that performs work on this Contract, the Contractor shall deliver, to the Government, a copy of its annual summary of occupational injuries and illnesses (OSHA 300 and OSHA 300A or equivalent) as described in Title 29, Code of Federal Regulations, Subpart 1904.5. If the Contractor is exempt by regulation from maintaining and publishing such logs, equivalent data in Contractor's format is acceptable (such as loss runs from insurance carrier) which contains the data required by JSC Form 288.
 - ii. Data shall be compiled and reported by calendar year and provided to the Government within 45 days after the end of the year to be reported (e.g. not later than February 15 of the year following).

3. HAZARD PREVENTION AND CONTROL

- 3.1 Identified hazards must be eliminated or controlled. In the multiple employer environment of the Center, it is required that hazards including discrepancies and corrective actions be collected in a Center wide information system Hazard Abatement Tracking System (HATS) for risk management purposes. Describe your approach to implementing this requirement.
- 3.2 Appropriate Controls. Discuss approach to consideration and selection of controls. Discuss use of hazard reduction precedence sequence (see JPR 1700.1). Discuss approach to identifying and accepting any residual risk. Discuss implementation of controls including verifying effectiveness. Discuss scope of coverage (hazardous chemicals, equipment, energies, etc.). Discuss need for coordination with safety, health, and emergency authorities at NASA.
- 3.3 Hazardous Operations and Processes. Establish methods for notification of personnel when hazardous operations and processes are to be performed in their facilities or when hazardous

conditions are found to exist during the course of this Contract. JPR 1700.1 will serve as a guide for defining, classifying, and prioritizing hazardous operations; 29 CFR 1910.119 will be the guide for hazardous processes when the material or process meets the requirements therein. Develop and maintain a list of hazardous operations and processes to be performed during the life of this Contract. The list of hazardous operations and processes will be provided to JSC as part of the plan for review and approval. JSC and the Contractor will decide jointly which operations and processes are to be considered hazardous, with JSC as the final authority. Before hazardous operations or processes commence, the Contractor will develop a schedule to develop written procedures with particular emphasis on identifying the job safety steps required. NASA will have access on request to any Contractor data necessary to verify implementation. For all identified operations or processes that may have safety or health implications outside Contract operations, the Contractor shall identify such circumstances to the JSC Safety and Test Operations Division and Occupational Health Officer who will provide additional instructions for further NASA management review and approval.

- 3.4 Written Procedures. Identification of methods to assure that the relevant hazardous situations and proper controls are identified in documentation such as inspection procedures, test procedures, etc., and other related information. Describe methods to assure that written procedures are developed for all hazardous operations, including testing, maintenance, repairs, and handling of hazardous materials and hazardous waste. Procedures will be developed in a format suitable for use as safety documentation (such as a safety manual) and be readily available to personnel as required to correctly perform their duties.
- 3.5 Hazardous Operations Permits. Identify facilities, operations and/or tasks where hazardous operations permits will be required as specified in JPR 1700.1 such as confined space entry, hot work, etc. Set forth guidance to adhere to established NASA JSC procedures. Clearly state the role of the safety group or function to control such permits.
- 3.6 Operations Involving Potential Asbestos Exposures. Set forth method by which compliance is assured with JSC Asbestos Control Program as established in JPR 1700.1, as revised.
- 3.7 Operations Involving Exposures to Toxic or Unhealthful Materials. Such operations must be evaluated by the JSC Occupational Health Office and must be properly controlled as advised by same. JSC Occupational Medicine must be notified prior to initiation of any new or modified operation potentially hazardous to health.
- 3.8 [RESERVED]
- 3.9 Baseline Documentation. Discuss the Contractor's responsibilities for maintaining facilities baseline documentation in accordance with JSC requirements. The Contractor will implement any facilities baseline documentation tasks (including safety engineering) as provided in the Contractor's plan approved by NASA or as required by Government direction.
- 3.10 Preventive Maintenance. Discuss approach to preventive maintenance. Describe scope, frequency, and supporting rationale for your preventive maintenance program including facilities and/or equipment to be emphasized or de-emphasized. Discuss methods to promote awareness in the NASA community (such as alerts, safety flashes, etc.) when preventive maintenance reveals design or operational concerns in facilities and equipment (and related processes where applicable).

- 3.11 Medical (Occupational Healthcare) Program. Discuss the Contractor's medical surveillance program and injury/illness case management to evaluate personnel and workplace conditions to identify specific health issues and prevent degradation of personnel health as a result of occupational exposures. Discuss approach to Cardiopulmonary Resuscitation (CPR), first aid, and, return to work policies and the use of Government provided medical and emergency facilities for the initial treatment of occupational injuries/illnesses.
- 3.12. Hazard Correction and Tracking. Discuss your system for correcting and tracking safety, health, and environmental hazards with particular emphasis on integration with JSC's Hazard Abatement Process (found on line @ <http://www.srqa.jsc.nasa.gov/HATS/>). (The scope is restricted to establishments at JSC, Sonny Carter Training Facility, and Ellington Field.) This includes the following:
- 3.12.1 Personnel Awareness of Hazards. Discuss your approach to communicate unsafe conditions and approved countermeasures to your employees. Discuss your approach to communicating such conditions to the Government and other Contractors whose personnel may be exposed to such unsafe conditions. Discuss communications with Facility Managers. Discuss use of the NASA Lessons Learned Information System for both obtaining lessons from other sources and as a repository for lessons learned during performance of the Contract.
- 3.12.2 Interim and Final Abatement Plans - Describe how you will approach interim and final abatement of hazards. Describe how you will provide data to the JSC HATS for all hazards within Contractor-occupied facilities that are not finally abated (all interim and final abatement actions completed) within 30 days of discovery. Discuss your approach to posting such plans using JSC Form 1240, "JSC Notice of Safety or Health and Action Plan", or equivalent. Discuss compatibility of your system with JSC's role of facility managers in abatement planning, implementation, and verification.
- 3.13 Disciplinary System. Describe your system for ensuring safety and health discipline in your personnel (including subcontractors). Describe your approach to modifying personnel behaviors when personnel are exhibiting discrepant safety and health performance.
- 3.14 Emergency Preparedness. Discuss approach to emergency preparedness and contingency planning which addresses fire, explosion, inclement weather, etc. Discuss compliance with 29 CFR 1910.120 (HAZWOPER) and role in JSC Incident Command System (see JPR 1700.1 for details). Discuss methods to be used for notification of JSC emergency forces including emergency dispatcher, safety hotline, director's safety hotline, etc. Discuss establishment of pre-planning strategies through procedures, training, drills, etc. Discuss methods to verify emergency readiness.

4. SAFETY AND HEALTH TRAINING

Discuss the following:

- 4.1 Describe the Contractor's training program including identification of responsibility for training employees to assure understanding of safe work practices, hazard recognition, and appropriate responses for protective and/or emergency countermeasures, including training to meet Federal, State, and Local regulatory requirements.

- 4.2 Describe approach to identifying training needs including traceability to exercises such as job safety analyses, performance evaluation profiles, hazard analyses, mishap investigations, trend analyses, etc.
- 4.3 Describe approach to training personnel in the proper use and care of personal protective equipment (PPE).
- 4.4 Discuss tailoring of training towards specific audiences (management, supervisors, and employees) and topics (safety orientation for new hires, specific training for certain tasks or operations).
- 4.5 Discuss approach to ensure that training is retained and practiced. Discuss personnel certification programs. Certifications should include documentation that training requirements and physical conditions have been satisfied (examples include physical examination, testing, and on-the-job performance).
- 4.6 Address utilization of JSC safety and health training resources (such as asbestos worker training/certification, hazard communication, confined space entry, lockout/tagout, etc.) as appropriate with particular emphasis on programs designed for the multiple employer work environment on NASA property. If the Contractor wishes to train their personnel in any regulatory mandated training, an agreement will be secured with JSC Occupational Safety Branch and Occupational Health and Test Operations Division and the JSC Occupational Health Officer Support office prior to beginning training. The agreement will ensure that safety and health training resources available from NASA are utilized where appropriate.
- 4.7 Discuss approach to making all training materials and training records available to NASA, and other Federal, state, and local agencies for their review upon request.

FORMAT: Electronic and hard copies

9. OPR: OE

- 10. FIRST SUBMISSION DATE:** The Safety and Health plan shall be submitted in final form with the proposal. Upon NASA approval, the Contractor's Safety and Health Compliance Plan becomes a Contractual Requirement.

Frequency of Submission: The plan shall be reviewed at least annually thereafter and updated as required.

Additional Submissions: The plan shall be updated with the changes highlighted to meet the latest OSHA, JSC, and VPP requirements. If there are no changes since the last update, the Contractor shall re-certify its accuracy NLT October 1 of each year.

- 11. MAINTENANCE:** The document shall be delivered and maintained electronically. Changes shall be incorporated as required by change page or complete reissue.

12. COPIES/DISTRIBUTION:

Program Authorized Repository Upload Notification: OH2/Data Management

Program Authorized Repository Upload Notification:
OE/Safety and Mission Assurance/Program Risk Office
NS/Safety and Test Operations Division

1 electronic copy: Program Authorized Repository

After the plan is approved by NASA, the Contractor will send additional copies to each of the following:

NS/Safety and Test Operations Division (2 hard copies)

JSC Occupational Health Officer (1 hard copy)

JSC Emergency Preparedness Office (1 hard copy)

- 13. REMARKS:** The Safety and Health Plan requires approval of the Manager, S&MA/Program Risk Office. The final plan, as approved by the Contracting Officer, shall be incorporated in the contract as Attachment J-3.

DATA REQUIREMENTS DESCRIPTION (Based on JSC-STD-123)

1a. DRD Title: Monthly Safety and Health Metrics	2. Date of Current Version	3a. DRD No. PIC-SA-03	3b. RFP/Contract No. Final RFP NNJ09ZBG001R
1b. Data Type: 3 4. Use (Define need for, intended use of, and/or anticipated results of data) Establishes selected Safety and Health Program metrics in accordance with OSHA Requirements			5. DRD Category <input type="checkbox"/> Technical <input type="checkbox"/> Administrative <input checked="" type="checkbox"/> S&MA/PR
6. References (SOW, Clause, etc.) SOW 6.1.4 JPR 1700.1, JSC Safety and Health Handbook		7. Interrelationships (e.g., with other DRDs)	

- 8. PREPARATION INFORMATION:** The Contractor shall prepare the deliverable as follows:

SCOPE: The scope of the information required is limited to NASA Centers and sites where the Contractor is operational under this contract.

CONTENT: The Safety and Health Metrics shall be in accordance with the Safety and Health Plan and JPR 1700.1.

I. Management Commitment and Employee Involvement.

Date of Management Safety Committee Meeting		Type/Title of Meeting	No. of Managers attending		No. of supervisors attending		No. of non-supervisory attending	
This	Year to		This	Year to	This	Year to	This	Year to

month	date		month	date	month	date	month	date

Include electronic copies of minutes or representative information

No. of Employee Safety Meeting		Type/Title of Meeting	No. of Employees attending		No. of managers/supervisors attending	
This month	Year to date		This month	Year to date	This month	Year to date

Include electronic copies of minutes or representative information

II. Worksite Analysis. Refer to JPR 1700.1 for definitions of terms.

Division	No. of Hazard Analyses				No. of Job Safety Analyses				No. of Routine Inspections			
	Required		Performed		Required		Performed		Required		Performed	
	This month	Year to Date	This month	Year to Date	This month	Year to Date	This month	Year to Date	This month	Year to Date	This month	Year to Date
Total												

III. Hazard Prevention and Control - hazards below were found during routine and special inspections, close calls, mishap investigations, etc., and require correction.

No. of Hazards found			No. of Hazards closed <30 days			No. of Hazards open <30 days	No. of Hazards open >30 days			No. of Hazards closed >30 days			No. of JF1240s in place
Prior to month	This month	Year to date	Prior to month	This month	Year to date		Prior to month	This month	Year to date	Prior to month	This month	Year to date	

Attach copies (electronic ok if sent by e-mail) of JF 1240's (or equivalent) including monthly updates. Mark JF 1240's where abatement has been completed as closed.

IV. Safety and Health Training - List courses specific to loss control initiatives (such as slips/trips falls, material handling; etc.) Report other training as "Generic safety training not otherwise specified" (examples include Hazard Communication, Confined Space entry, HAZWOPER, system safety, job safety analysis, etc.) Do not include job proficiency course work where safety is an issue (such as radiography, welding, painting, etc.)

Course Title	No. to be Trained	No. Trained	On Schedule

Instructions for Completing JSC Form 2341

General. JSC Form 2341 will be prepared to describe the content and provide preparation information for data required to support of JSC programs. For more detailed instructions, see JSC STD-123.

1. **DRD Title.** Enter the title of data or document required. The title should include a principal noun which best establishes the basic concept of the data.
2. **Date of current DRD version.** If an existing DRD is revised, enter the revision date. For a new DRD, enter origination date.
3. **DRL Line Item.** Enter the individual line item number from block 1 of JSC Form 2323, "JSC Data Requirements List," as completed for a specific procurement.

RFP/Contract No. The assigned procurement office enters the number of the specific procurement document to which the DRD is attached.

4. **Use.** Enter a synopsis of the intended use of the document. Include the reason for the requirement and identify the using organization if necessary.
5. **DRD Category.** Check the type of information described. SR&QA DRDs must be approved by a representative of the JSC Safety, Reliability, and Quality Assurance Office.
6. **References (Optional).** List applicable documents (NASA or JSC manuals, military specifications, Federal standards, NASA procurement regulations, etc.) containing additional information concerning the data requirements. If original DRD refers to obsolete documents, these should be deleted when the DRD is revised.
7. **Interrelationships (Optional).** Enter other data requirements or passages in the same SOW that will affect or be affected by this DRD. References to paragraphs in the SOW may not be substituted for the information in block 8.
8. **Preparation Information.** Provide instructions for preparation of the data required. JSC STD-123 contains suggestions for completing this section. If additional pages are required, use blank 8 1/2 X 11 inch sheets.

Note: For definitions refer to JPR 1700.1 and OSHA requirements for definitions of terms.

FORMAT: Electronic, Excel spreadsheet or in tables compatible with MS Word.

9. **OPR:** OE

10. **FIRST SUBMISSION DATE:** Monthly by 10th of month following month being reported.

Frequency of Submission: Monthly by the 10th day of the month following the month being reported

Additional Submissions: N/A

11. **MAINTENANCE:** The document shall be maintained electronically.

12. **COPIES/DISTRIBUTION:**

Program Authorized Repository Upload Notification: OH2/Data Management

Program Authorized Repository Upload Notification:

OE/Safety and Mission Assurance/Program Risk Office

NS/Safety and Test Operations Division

SD3/Occupational Health Officer

1 electronic copy: Program Authorized Repository

13. **REMARKS:** None

DATA REQUIREMENTS DESCRIPTION

(Based on JSC-STD-123)

1a. DRD Title: Safety and Health Program Self-Evaluation	2. Date of Current Version	3a. DRD No. PIC-SA-04	3b. RFP/Contract No. Final RFP NNJ09ZBG001R
1b. Data Type: 3			
4. Use (Define need for, intended use of, and/or anticipated results of data) To provide Self-Evaluation of Contractor's safety and health program performance.			5. DRD Category <input type="checkbox"/> Technical <input type="checkbox"/> Administrative <input checked="" type="checkbox"/> S&MA/PR
6. References (SOW, Clause, etc.) SOW 6.1.4		7. Interrelationships (e.g., with other DRDs) Safety and Health Program Self-Evaluation	

8. PREPARATION INFORMATION: The Contractor shall prepare the deliverable as follows:

SCOPE: The scope of the information required is limited to NASA Centers and sites where the Contractor is operational under this contract.

CONTENT: The Contractor shall conduct an annual self-evaluation of its safety and health program as required by its safety and health plan.

Information required:

1. The internal assessment of safety and health program effectiveness during the report period (i.e., the previous year) indicating the status of goals or objectives previously established and areas of strength and weakness in Contractor safety program performance.
2. Safety and health concerns and resolutions relating to JSC operations which may have been identified during the report period.
3. Unresolved safety and health concerns relating to JSC operations which the Contractor feels merit attention of JSC safety and health management.
4. The goals and objectives of the Contractor safety and health program for the next report period.
5. An analysis of the contractor's performance at JSC-administered establishments in each of the 32 Voluntary Protection Program sub-elements found in the Federal Register Notice 65:45649-45663, July 24, 2000.
6. Attach action plans for identified problem areas. Action plans must include schedule for periodic progress reports to the Government on a frequency agreed to by the Government and the Contractor for each problem area.

FORMAT: Format to be as required by the cognizant OSHA regional office. Contractors who have submitted a written self-evaluation as a VPP site may submit their original report to JSC in lieu of writing a new self-evaluation provided that all action plans and status are updated.

9. **OPR:** OE

10. **FIRST SUBMISSION DATE:** September 30, 2010

Frequency Of Submission: Annually on September 30th of each year.

Additional Submissions: N/A

11. **MAINTENANCE:** The document shall be maintained electronically.

12. **COPIES/DISTRIBUTION:**

Program Authorized Repository Upload Notification: OH2/Data Management

Program Authorized Repository Upload Notification:

OE/Safety and Mission Assurance/Program Risk Office

NS/Safety and Test Operations Division

1 electronic copy: Program Authorized Repository

13. **REMARKS:** None

DATA REQUIREMENTS DESCRIPTION

(Based on JSC-STD-123)

1a. DRD Title: Probabilistic Risk Assessment (PRA)	2. Date of Current Version MOD 1	3a. DRD No. PIC-SA-05	3b. RFP/Contract No. Final RFP NNJ09ZBG001R
1b. Data Type: 3		4. Use (Define need for, intended use of, and/or anticipated results of data) The PRA provides an analytical capability to quantify safety and risk issues and is designed to support strategic decisions. As an integral part of risk assessment, PRA helps determine, (i) what can go wrong that could lead to an undesired outcome, (ii) how likely is this to happen, and (iii) if it happens, what consequences are expected. Effective resource allocation depends on a good, thorough risk model, like PRA.	
5. DRD Category <input type="checkbox"/> Technical <input type="checkbox"/> Administrative <input checked="" type="checkbox"/> S&MA/PR		6. References (SOW, Clause, etc.) SOW 6.3.2	
7. Interrelationships (e.g., with other DRDs)			

8. PREPARATION INFORMATION: The Contractor shall prepare the deliverable as follows:

SCOPE: Risk model capable of assessing risks due to changes in ISS configuration, operations, or environmental factors. The Risk model will address ISS systems and visiting vehicles.

CONTENT: PRA analyses and reports shall be in accordance with NPR 8705.5, PRA Guidelines for NASA Programs and Projects. There shall be a PRA final report for each configuration modeled which contains:

- (i) An introductory section,
- (ii) PRA Development Approach,
- (iii) a detailed section describing the model including end state definitions, master logic diagram, event sequence diagrams, fault trees, data collection and analysis methods, ground rules and assumptions,
- (iv) Results of the modeling effort, and
- (v) Future work and recommendations.

FORMAT: Electronic

9. OPR: OE

10. FIRST SUBMISSION DATE: As required by Task Order.

Frequency of Submission: As required

Additional Submissions: As required

11. MAINTENANCE: The documents shall be maintained electronically.

12. COPIES/DISTRIBUTION:

Program Authorized Repository Upload Notification: OH2/Data Management

Program Authorized Repository Upload Notification: OE

1 electronic copy: Program Authorized Repository

13. REMARKS: None

DATA REQUIREMENTS DESCRIPTION

(Based on JSC-STD-123)

1a. DRD Title: Hazard Reports and System Description	2. Date of Current Version	3a. DRD No. PIC-SA-07	3b. RFP/Contract No. Final RFP NNJ09ZBG001R
1b. Data Type: 2			
4. Use (Define need for, intended use of, and/or anticipated results of data) The Contractor shall ensure the safety of crew and ISS by using the Hazard Reports and System Description to assess mission integration and operation of ISS.			5. DRD Category <input type="checkbox"/> Technical <input type="checkbox"/> Administrative <input checked="" type="checkbox"/> S&MA/PR
6. References (SOW, Clauses, etc) SOW, Paragraph 6.4 SSP 30309, Safety Analysis and Risk Assessment Requirements Document SSP 30599, ISS Safety Review Process		7. Interrelationships	

8. PREPARATION INFORMATION: The Contractor shall prepare the DRD as follows:

SCOPE: Submittals shall consist of Hazard Reports and System Descriptions (as defined in "Content") on flight and/or stage specific integrated safety assessments for operation of the ISS vehicle for compliance with Section C, Statement of Work, paragraph 6.4.

CONTENT: The Hazard Reports and System Descriptions shall document the program approach for executing the safety process in accordance with SSP 30309, Safety Analysis and Risk Assessment Requirements Document.

A. System Description: The Contractor shall provide a description of the on-orbit ISS Operations in accordance with SSP 30599, Safety Review Process. Functional diagrams shall be submitted and supplemented with descriptions of interfaces and operations.

B. Hazard Report: Hazard Reports shall include the following data fields:

- Hazard Report Number
- Hazard Title
- Review Level
- Revision Date
- Scope

- Hazard Description
- Cause Summary
- Program Stage
- Interfaces
- Status of Work
- Remarks
- Submittal Concurrence
- Approval
- Mission Phase
- Severity Category
- Likelihood of Occurrence
- Controls
- Method for Verification of Controls
- Safety Requirements
- Detection and Warning Method
- Cause Remarks
- CIL Reference
- Point of Contact

Note: The Hazard Reports and System Descriptions for “Mission Integration” do not follow submittal and approval of the typical Phase I, Phase II, and Phase III deliveries. The uniqueness of the safety assessments requires a “content level” commensurate with the maturity of a Phase III submittal, including verification of the established controls. This is required as the “System Description” needed to process the hazard report is finalized only months before flight.

FORMAT: These deliverables shall be in the format described in SSP 30599.

9. OPR: OE

10. FIRST SUBMISSION DATE: 60 days prior to the first flight where the Contractor takes responsibility for Mission Integration

Frequency of Submission: Each report will be submitted for approval and resubmitted, as required, until approved by the ISS Safety Review Panel (SRP). Reports being submitted for ISS SRP approval shall be sent to the ISS SRP Coordination Office.

Additional Submissions: Submittal of the Hazard Report and System Description will be based the Contractor’s periodic reassessment of the hazards and controls. At a minimum, each operational stage shall be assessed 60 days in advance. Results of this assessment shall be provided to the ISS SRP Coordination Office.

11. MAINTENANCE: The document shall be delivered and maintained electronically. Changes shall be incorporated as required by change page or complete reissue.

12. COPIES/DISTRIBUTION: (post ISS SRP approval)

Program Authorized Repository Upload Notification: OH2/Data Management

Program Authorized Repository Upload Notification:

OE/Safety and Mission Assurance/Program Risk Office

NE/ISS SRP Coordination Office

1 electronic copy: Program Authorized Repository

13. REMARKS: The Hazard Reports and System Description shall be prepared in accordance with SSP 30309 in support of the ISS safety review and the ISS CoFR processes.

DATA REQUIREMENTS DESCRIPTION

(Based on JSC-STD-123)

1a. DRD Title: Lessons Learned Program Plan and Lessons Learned 1b. Data Type: 1	2. Date of Current Version	3a. DRD No. <p style="text-align: center;">PIC-SA-08</p>	3b. RFP/Contract No. <p style="text-align: center;">Final RFP NNJ09ZBG001R</p>
C. Use (Define need for, intended use of, and/or anticipated results of data) Establishes Process for obtaining Lessons Learned from Contractor for possible publication in JSC Lessons Learned Database and NASA Lessons Learned Information System (LLIS)			5. DRD Category <input type="checkbox"/> Technical <input type="checkbox"/> Administrative <input checked="" type="checkbox"/> S&MA/PR
6. References (SOW, Clause, etc.) SOW 6.1.5		7. Interrelationships (e.g., with other DRDs)	

- 8. PREPARATION INFORMATION:** The Contractor will develop and implement a lessons learned program plan consistent with the areas defined in the statement of work and/or the work breakdown structure.

Lessons Learned Program Plan. The lessons learned program plan will include:

- A. Lessons learned program structure and management responsibility for lessons learned.
- B. Lessons Learned advocacy throughout the contracted effort.
- C. Approach to selection, review, and validation of lessons learned using contract and Government assets.
- D. Approach used to balance trade secret and security imperatives vice Government rights in data and the need to capture lessons for publication in Government information systems and processes.
- E. The dissemination of lessons learned throughout appropriate NASA Programs including the retrieval and dissemination of lessons published in the JSC Lessons Learned Database and the NASA Lessons Learned Information System.
- F. Information on the successful use of retrieved lessons including how they were used, by whom, for what purposed, and implementation detail delivered to the Government as additional recommendations for previously published lessons.
- G. Goals for the Contractor's lessons learned program including schedules, scope, breadth, quality, and quantity of lessons the Government can expect as delivered lessons. Appropriate metrics for identification, publication, and dissemination are highly desirable.
- H. The approach to the selection of media to be used for of supporting data inclusion with each lesson learned (such as photographs, analyses, diagrams, schematics, drawings, and streamed video.)

Access to the JSC Lessons Learned Database (LLDB) and the NASA Lessons Learned Information System (LLIS).

1. To obtain access privileges to the JSC Lesson learned Database, JSC Domain Internet access is required to enter and review lessons learned information. The JSC lessons learned databases is accessible at <http://lldb.jsc.nasa.gov/>.
2. To obtain access to the NASA Lessons Learned Information System, go to <http://nen.nasa.gov/portal/site/llis/menuitem.41d2c6248694d611b649cc1036793ea0/> and follow instructions.

Criteria for Selecting Lessons Learned. Uncommon insight arising from any event or observation that will benefit from sharing with a larger community of interested parties. Lessons learned are intended to prevent recurrence of undesirable events and to allow NASA and its team members to capitalize to the greatest extent practical on unique successes requiring documented insight for retrieval on demand. Sharing of lessons with other Government agencies is also expected.

Frequency of submission for lessons learned. As follows (in order of decreasing Government preference):

- A. Data entry to the JSC LLDB or NASA LLIS within 30 days of a triggering event;
- B. Within 30 days of a program milestone, mishap investigation, or hazard or other engineering analysis / evaluation is completed; or
- C. 30 days prior to end of contract evaluation period or 45 days prior to end of contract, whichever is applicable.

Distribution of Lessons.

Lessons are distributed by entry into the JSC Lessons Learned Database which submits lessons to the NASA Lessons learned Information System once approved and published. The NASA Lessons Learned Information System may be used directly if the contractor is outside the JSC domain or firewall.

Content of Lessons.

1. Subject - one line subject of the lesson.
2. Lesson Learned - usually one sentence that describes insight gained
3. Description of Event - narrative that describes what happened.
4. Recommendations - may be an action plan, suggestion, etc., that was adopted at event source.
5. Supporting documentation -- submit as needed to augment understanding of lesson (photographs with or without pointers and text labels), illustrations, drawings, etc.)
6. Contact name and e-mail address (for follow up by Government prior to publication of lesson).

Evaluation of Contactor Lessons Learned Program performance.

The following characteristics are evaluated by the Government in order of decreasing importance:

1. Effectiveness of approach to lessons learned advocacy.
2. Ability to recognize and capitalize on lessons learned in a timely manner.
3. Breadth of participation by the contracted effort to include from where lessons originate for publication and to whom lessons are disseminated for use by contract assets.
4. Technical quality of lessons submitted including thoroughness and readiness of supporting documentation for publication.

FORMAT: Electronic

9. **OPR:** OE and JSC Office of the Chief Engineer

10. **FIRST SUBMISSION DATE:** Draft Lessons Learned Program Plan by the end of the phase-in period. Final Lessons Learned Program Plan will be submitted 90 days after contract start if required by the task order.

Frequency of Submission: The Lessons Learned Program Plan shall be reviewed at least annually thereafter and updated as required.

Additional Submissions: If there are no changes since the last update, the Contractor shall re-certify its accuracy NLT 1 October of each year if required by the task order.

11. **MAINTENANCE:** The document shall be delivered and maintained electronically. Changes shall be incorporated as required by change page or complete reissue.

12. **COPIES/DISTRIBUTION:**

Program Authorized Repository Upload Notification: OH2/Data Management

Program Authorized Repository Upload Notification: OE and JSC Office of the Chief Engineer

1 electronic copy: Program Authorized Repository

13. **REMARKS:** The Lessons Learned Program Plan requires approval of the Manager, S&MA/Program Risk Office with concurrence by the JSC Office of the Chief Engineer.

DATA REQUIREMENTS DESCRIPTION

(Based on JSC-STD-123)

1a. DRD Title: ISS Documents Maintenance and Assessment	2. Date of Current Version	3a. DRD No. <p style="text-align: center;">PIC-SI-01</p>	3b. RFP/Contract No. <p style="text-align: center;">NNJ09GA18B</p>
1b. Data Type: 1		4. Use (Define need for, intended use of, and/or anticipated results of data) Maintain technical integrity and traceability of systems and interface requirements and implementations for the ISS	
5. DRD Category <input checked="" type="checkbox"/> Technical <input type="checkbox"/> Administrative <input type="checkbox"/> SR&QA		6. References (SOW, Clause, etc.) SOW 2.2.1 SSP 41171	
7. Interrelationships (e.g., with other DRDs) PIC-SI-02			

- 8. PREPARATION INFORMATION:** The Contractor shall prepare the deliverable as follows:

SCOPE: This DRD establishes the content, format, and submittal requirements for the International Space Station System Specification, Partner Segment Specifications, IRDs, and ICDs.

CONTENT: The administered documents shall contain design, performance, and interface requirements for the ISS or Visiting Vehicles. Content shall be sufficient to assure software, mechanical, and functional compatibility of all elements and segments that must be integrated to form the ISS System. PIRNs or Change Requests add technical updates to the ISS Program through these documents.

FORMAT: All ICDs shall be maintained and updated in two parts: Part I shall contain interface requirements and Part II shall contain the interface design implementation. The IRDs shall be maintained and updated in one part. The format of all interface documents shall be in accordance with SSP 41174. Requirements Specification Documents shall meet the standards specified in SSP 41171, except as modified in IP specifications by negotiations with the International Partner/Participant.

- 9. OPR:** OM/Program Integration Office

- 10. FIRST SUBMISSION DATE:** As required by the Task Order.

Frequency of Submission: Update as required per task order. After documents supplied under this DRD are added to the Applicable Documents List of this contract (Attachment J-8), updates will be accomplished in accordance with SSP 41170.

Additional Submissions: N/A

11. MAINTENANCE: Specifications shall be maintained electronically and in accordance with SSP 41171, or as modified by negotiations with the Partner/Participant. ICDs/IRDs shall be maintained electronically in accordance with SSP 30459 and SSP 41174.

12. COPIES/DISTRIBUTION:

Program Authorized Repository Upload Notification: OH2/Data Management

Program Authorized Repository Upload Notification: OM/Program Integration
Office

1 electronic copy: Program Authorized Repository

13. REMARKS: None

DATA REQUIREMENTS DESCRIPTION

(Based on JSC-STD-123)

1a. DRD Title: Specification Traceability and Compliance Reports	2. Date of Current Version	3a. DRD No. PIC-SI-02	3b. RFP/Contract No. Final RFP NNJ09ZBG001R
1b. Data Type: 2	4. Use (Define need for, intended use of, and/or anticipated results of data) Document specification traceability to support closure for the ISS System Specification, U.S. On-Orbit Segment Specification, and IP/Ps Segment Specifications. Document traceability from the ISS System Specification, the U.S. On-Orbit Segment Specification, and to the IP/Ps Segment Specifications.		5. DRD Category <input checked="" type="checkbox"/> Technical <input type="checkbox"/> Administrative <input type="checkbox"/> SR&QA
6. References (SOW, Clause, etc.) SOW 2.2.1		7. Interrelationships (e.g., with other DRDs) PIC-SI-01	

- 8. PREPARATION INFORMATION:** The Contractor shall prepare the deliverable as follows:

SCOPE: The Specification Traceability and Compliance Reports document the requirements traceability flowdown and support verification closure for:

- A. SSP 41000, ISS System Specification
- B. SSP 41160, ESA Segment Specification for Columbus
- C. SSP 41162, U.S. On-Orbit Segment Specification
- D. SSP 41163, Russian Segment Specification
- E. SSP 41165, Segment Specification for the Japanese Element Module (JEM)
- F. SSP 41167, Mobile Servicing System Segment Specification
- G. SSP 50273, HTV Segment Specification
- H. SSP 50333, Cupola Segment Specification
- I. SSP 50439, ESA Segment Specification For The Automated Transfer Vehicle (ATV)
- J. SSP 50318, Prime Item Development Specification for Node 3

CONTENT:

- A. The Specification Traceability Report shall contain the following for each of the specifications identified above:
 - (1) Requirements with no lower level requirements.
 - (2) Requirements with no parent requirements.

FORMAT: Electronic

9. **OPR:** OM/Program Integration Office

10. **FIRST SUBMISSION DATE:** As required by Task Order

Frequency of Submission: Twice annually updates, as required. Delivery frequency as per DRD PIC-SI-01. Final submission shall be prior to the end of the contract period of performance.

Additional Submissions: N/A

11. **MAINTENANCE:** The reports shall be maintained electronically.

12. **COPIES/DISTRIBUTION:**

Program Authorized Repository Upload Notification: OH2/Data Management

Program Authorized Repository Upload Notification: OM/Program Integration Office

1 electronic copy: Program Authorized Repository

13. **REMARKS:** None.

DATA REQUIREMENTS DESCRIPTION

(Based on JSC-STD-123)

1a. DRD Title: Systems Engineering Technical Assessments	2. Date of Current Version	3a. DRD No. <p style="text-align: center;">PIC-SI-03</p>	3b. RFP/Contract No. <p style="text-align: center;">Final RFP NNJ09ZBG001R</p>
1b. Data Type: 3			5. DRD Category <input checked="" type="checkbox"/> Technical <input type="checkbox"/> Administrative <input type="checkbox"/> SR&QA
4. Use (Define need for, intended use of, and/or anticipated results of data) To provide recommendations to the ISS Program management on the strategic implications of the ISS Program launch schedules, manifests, and ISS on-orbit operations, and assist in the NASA's development of strategic requirements.		7. Interrelationships (e.g., with other DRDs)	
6. References (SOW, Clause, etc.) SOW 2.2.2			

8. PREPARATION INFORMATION: The Contractor shall prepare the deliverable as follows:

SCOPE: Each technical assessment shall specify the stage(s) or configuration(s) for which the assessment is valid. Each assessment shall also include clear definition of assumptions (including bounding operational constraints and configuration assumptions) invoked in the assessment.

CONTENT: The technical assessment documentation shall include the SOW requirement(s) being addressed by the assessment, if applicable, and the following:

- A. Coordination list
- B. Background information sufficient to inform a cognizant ISS customer of the applicability of this analysis to their discipline
- C. Summary of methodology and rationale for confidence in the results
- D. Summary of findings and recommendations
- E. Supporting data

FORMAT: Contractor supplied web-based format, compatible with ISS document standards. Format includes but is not limited to briefing charts in electronic form.

9. OPR: OM

10. FIRST SUBMISSION DATE: As needed by direction of the OPR

Frequency of Submission: As required

Additional Submissions: Technical assessments are required on most Systems Engineering and Integration (SE&I) deliverables.

11. MAINTENANCE: Electronically, as required

12. COPIES/DISTRIBUTION:

Program Authorized Repository Upload Notification: OH2/Data Management

Program Authorized Repository Upload Notification: OM

1 electronic copy: Program Authorized Repository

13. REMARKS: None

DATA REQUIREMENTS DESCRIPTION

(Based on JSC-STD-123)

1a. DRD Title: On-Orbit Assembly, Modeling, and Mass Properties Data Book (Blue Book)	2. Date of Current Version	3a. DRD No. PIC-SI-04	3b. RFP/Contract No. Final RFP NNJ09ZBG001R
1b. Data Type: 2 4. Use (Define need for, intended use of, and/or anticipated results of data) The data book provides the ISS Program on-orbit mass properties, geometric, and aerodynamic data of the ISS mated, intermediate assembly, and stage configurations. This data is utilized by ISS Program/SSP subsystem teams (e.g. GN&C) that require on-orbit stage mass properties. The figures are also used in other ISS/SSP documents where ISS on-orbit figures are required.			5. DRD Category <input checked="" type="checkbox"/> Technical <input type="checkbox"/> Administrative <input type="checkbox"/> SR&QA
6. References SOW 2.2.3.2.2 SOW 2.2.3.2.11 SOW 2.2.3.2.12 JSC 26557 SSP 30219		7. Interrelationships (e.g., with other DRDs)	

8. PREPARATION INFORMATION: The Contractor shall prepare the deliverable as follows:

SCOPE: This DR establishes the content for the development of On-Orbit Assembly, Modeling and Mass Properties Data Book (*Blue Book*) (JSC 26557). It will define the data sources for the development and the content of the Blue Book.

CONTENT: This *Blue Book* (named so because of the blue book covers) provides comprehensive assembly, mass and aerodynamic properties data for the full range of the ISS construction activities for the 18 months from the document release. Volume I contains free flying and Orbiter-attached configuration properties. In Volume II the mass property and aerodynamic data are organized into a multi-body system utilized by analysts. Volume II provides data used by a limited number of customers within the ISS analysis community. The reference document JSC 26557 is the current On-orbit Assembly, Modeling, and Mass Properties Data Book. The tool MODGEN was used extensively for the data book development and is available for use by the contractor as identified in Section C, Addendum 2, Table 1.

ISS geometry, mass properties, and on-orbit orientation information is obtained from the ISS Sustaining Engineering Contract. The coordinate systems are defined in SSP 30219, Space Station Reference Coordinate Systems.

Elements moments of inertia, products of inertia and centers of pressure reported in this document shall be given with respect to the specific element, body, or vehicle center of mass. The center of mass and other significant points shall be reported with respect to the SSACS frame.

Vehicle configurations and dimensions shown in this document shall be derived from data for static, on-orbit element configurations. Dynamic conditions due to applied loads, including

internal pressure deformations of individual elements, and thermal effects will not be depicted or dimensioned in this document.

Orbiter specific mass properties shall be obtained from mission specific Shuttle Operations Data Books (SODBs).

The following information shall be provided for each configuration as defined by the Configuration List and the Assembly Matrix. Data will be given in the Space Station Analysis Coordinate System (SSACS) as defined in SSP 30219:

Detailed description

Solid model isometric hidden line drawing illustration

Reference point in SSACS and RSA Analysis Coordinate Systems

Total ISS on-orbit mass (lb, kg)

Center of mass location (X, Y, Z in ft, m)

Inertia tensor* (slug*ft**2, kg*m**2)

Principal moments of inertia (I_{XX}, I_{YY}, I_{ZZ} in slug*ft**2, kg*m**2).

The origin of the principal axes coordinate system is located at the configuration center of mass.

Principal to body Euler rotation angles

Projected areas (X, Y, Z in ft**2, m**2)

Aerodynamic centers of pressure are referenced in the SSACS frame to specific element, body, or vehicle center of mass and not the modeling origin.

Center of pressure offset matrix (with respect to the center of mass)

* Inertia matrix off-diagonal elements are negative integrals on these pages.

Configurations shall contain other extra data sets, including these items:

Element interfaces

Element properties*

The mass properties are given when the element either (a) initially is delivered to ISS, (b) increases or decreases in mass, (c) moves to a new location on the ISS, or (d) changes configuration [such as mechanism deployment or retraction].

Element dimensioned four-view drawings

Orbiter attach point location

Mass properties for an attached Orbiter vehicle*

Mass properties for mated ISS - Orbiter stack*

Dimensioned hidden line illustration of the final *Blue Book* ISS stage configuration showing interface to interface dimensions and other ISS key dimensions, such as solar array area or radiator location. Dimensions shall be in mm (inches).

* Inertia matrix off-diagonal elements are negative integrals on these pages.

Additional drawings shall be provided:

J-size drawing showing all the *Blue Book* configurations

C-size exploded isometric of the final *Blue Book* stage configuration

C-size dimensioned drawing of the final *Blue Book* stage configuration

Other drawings as required.

FORMAT: Delivery to NASA of the document volumes shall be made available electronically in Microsoft Word and Acrobat. Hardcopies will be available for users as required. The illustrations shall also be available individually in tif, gif, and pic formats. The individual mass property sets

will also be available separately in the user's required format. All electronic files will be available from an ftp server from JSC and non-JSC users (including International Partners) and are subject to the export control regulations.

9. **OPR:** OM2, External Configuration, Analysis, Modeling and Mass Property Team

10. **FIRST SUBMISSION DATE:**

Frequency of Submission: The individual electronic files of the blue book shall be delivered every June. Volume I and II shall be delivered electronically every January and July. Volume I and II shall be delivered in hardcopy annually. Construction of one data book per year is scheduled to address flight and operation plan modifications affecting missions close to launch. Users will be notified by mail notification to the user distribution list of document deliveries and updates.

Additional Submissions: Change pages shall be produced if a significant change is the assembly sequence or mission timeline occurs. Prior approval by the OPR is required.

11. **MAINTENANCE:** All versions of the deliveries must be maintained electronically and must be accessible by the ISS Program/SSP users.

12. **COPIES/DISTRIBUTION:**

Program Authorized Repository Upload Notification: OH2/Data Management

Program Authorized Repository Upload Notification: OM2/External Configuration,
Analysis, Modeling and Mass Property Team

1 electronic copy: Program Authorized Repository

13. **REMARKS:** None

DATA REQUIREMENTS DESCRIPTION

(Based on JSC-STD-123)

1a. DRD Title: ISS Interior 3D CAD Models	2. Date of Current Version	3a. DRD No. PIC-SI-05	3b. RFP/Contract No. Final RFP NNJ09ZBG001R
1b. Data Type: 3	4. Use (Define need for, intended use of, and/or anticipated results of data) Input to vehicle integration to support the development of the on-orbit stage models to perform internal volume configuration analyses of the USOS. The models will be used for performing analyses related to IVA operations and Station interior integration included but not limited to crew translation paths, worksite operational volumes, visibility and access to critical equipment and controls, and other IVA-related functions.		5. DRD Category X_ Technical ___ Administrative ___ SR&QA
6. References (SOW, Clause, etc.) SOW 2.2.2.1.4.4.3		7. Interrelationships (e.g., with other DRDs)	

8. PREPARATION INFORMATION: The Contractor shall prepare the deliverable as follows:

SCOPE: USOS pressurized elements, systems racks, payloads, payload racks, and significant GFE items that are part of the IVA environment and impact the Station crew's habitable environment. Best available and as-designed validated models for the planned interior are required.

CONTENT: Validated 3-D CAD models with sufficient detail that the internal geometry shows an accurate depiction of the ISS stage configuration. High fidelity models of modules, racks, payloads, and significant GFE items should be provided for on-orbit configurations. CAD models of interior features are required that may include the following: internal pressure shell, standoffs, hatches, ports, stowage compartments, rack attachments, vents, lights, handrails, racks, seat track, emergency equipment, and significant GFE (i.e Cycle Ergometer with Vibration Isolation and Stabilization [CEVIS], Interim Resistive Exercise Device [IRED], Crew Medical Restraint System [CMRS], etc.). All objects that deploy, rotate or otherwise move shall be documented and modeled with location and limit parameters described.

FORMAT:

- A. Models shall be full scale in English (inches) units.
- B. Models shall be constructed to nominal dimensions.
- C. Models should be built with respect to element local coordinate system as defined by SSP 30219.
- D. Models shall be maintained in Pro-Engineer (or equivalent)
- E. Translation: STEP AP203 neutral file format acceptable only if Pro-Engineer formats are not available.
- F. Solid Models Only—Models may be unparameterized “dumb solids” meaning tolerance data; model history, material properties, etc. need not be included.

- G. Model parts should be individual entities and not fused together. This will allow CAD team to update the model based on hardware measurements. Assembly structure, part names and part numbers would be helpful. However, for controlling file size growth and having redundant geometry, all identical components (i.e., handrails, connectors, etc) will be nested in detail/ditto space/assemblies. For example if 20 identical handrails are used, only one detail is required and the rest should be in ditto space/assembly.
- H. Description on movement limits for any articulating items should be provided.
- I. As-designed and As-built (validated and final) models shall be validated to released engineering MBD data sets/drawings. MBD data sets/drawings shall be located in the VMDB.
- K. Where interior subassemblies are supplied as separate models, sufficient documentation shall be provided to support correct geometrical integration of each subassembly into its larger interior element.
- L. A model tree shall be provided which documents the element model assembly architecture as well as model and subassembly titles.
- M. Models shall be under configuration management so that the pedigree and source of models, including validation data, are documented and retained.
- N. Models and associated assembly trees and configuration data shall be delivered electronically via FTP site or as Compact Discs.

9. OPR: OM

10. FIRST SUBMISSION DATE: See below

Frequency of Submission: High fidelity validated 3D model required L-9 months.

Additional Submissions: N/A

11. MAINTENANCE: Models must be maintained electronically.

12. COPIES/DISTRIBUTION:

Program Authorized Repository Upload Notification: OH2/Data Management

Program Authorized Repository Upload Notification: OM

1 electronic copy: Program Authorized Repository

13. REMARKS: All ISS interior CAD models shall be deliverables to NASA and be made available to the ISS community or other users. Individual models shall be available at the level of modules, racks, and GFE.

DATA REQUIREMENTS DESCRIPTION

(Based on JSC-STD-123)

1a. DRD Title: Operations and Maintenance Requirements and Specifications Database (OMRSD)	2. Date of Current Version: March 6, 2008	3a. DRD No. PIC-VT-01	3b. RFP/Contract No. Final RFP NNJ09ZBG001R
1b. Data Type: 1 4. Use (Define need for, intended use of, and/or anticipated results of data) The OMRSD contains the requirements for processing the International Space Station components at KSC for flight readiness.		5. DRD Category <input checked="" type="checkbox"/> Technical <input type="checkbox"/> Administrative <input type="checkbox"/> SR&QA	
6. References (SOW, Clause, etc.) OMRS File 10 Database - SOW 3.1.1.1.2.3, Systems Engineering and Test and Verification (T&V) Support OMRS File 10 Database - NSTS 08171		7. Interrelationships (e.g., with other DRDs) N/A	

8. PREPARATION INFORMATION: The Contractor shall prepare the deliverable as follows:

SCOPE: The requirements, specifications and criteria in the OMRSD apply to pre-launch, launch, in-flight, recovery and turnaround operations of the International Space Station elements and payloads.

CONTENT: Approved/closed requirements for certification of flight readiness. Database houses active requirements for possible utilization on future flights.

FORMAT: Electronic.

9. OPR: Vehicle Office (OB)

10. FIRST SUBMISSION DATE: As needed following Shuttle retirement

Frequency of Submission: As required per Requirement Change Notice updates.

Additional Submissions: Procedures and Requirements Allocation Matrix for closed loop tracking.

11. MAINTENANCE: Electronic, as required (see additional submissions)

12. COPIES/DISTRIBUTION: N/A

Program Authorized Repository Upload Notification: OMRSD Facilitator at KSC

13. REMARKS: None

Attachment J-2

DOL WAGE

DETERMINATION

PROGRAM INTEGRATION AND CONTROL

STANDARD FORM e98

January 1996

U.S. DEPARTMENT OF LABOR
EMPLOYMENT STANDARDS
ADMINISTRATION

**NOTICE OF INTENTION TO MAKE
A SERVICE CONTRACT AND RESPONSE TO
NOTICE**

(See Instructions on Reverse)

1. NOTICE NO.

74809

NASA

MAIL TO:

Administrator
Wage and Hour Division
U.S. Department of Labor
Washington, DC 20210

2. Estimated solicitation date (use numerals)

Month	Day	Year
10	17	08

3. Estimated date bids or proposals to be opened

or negotiations begun (use numerals)

Month	Day	Year
02	03	09

4. Date contract performance to begin (use numerals)

Month	Day	Year
10	01	09

5. PLACE(S) OF PERFORMANCE

HARRIS COUNTY, TX

6. SERVICES TO BE PERFORMED (describe)

IV: International Space Station Program Integration and Control Contract NNJ09GA18B
WD Contract Period: 10/01/10 to 09/30/11

7. INFORMATION ABOUT PERFORMANCE

A. ☒ Services now performed by a contractor
B. ☐ Services now performed by Federal employees
C. ☐ Services not presently being performed

8. IF BOX A IN ITEM 7 IS MARKED, COMPLETE ITEM 8 AS APPLICABLE

a. Name and address of incumbent contractor

Applied Research & Engineering Sciences (ARES)
16441 Space Center Blvd, Bldg. A
Houston, TX 77058

b. Number(s) of any wage determination(s) in incumbent's contract

WD 2005-2516

c. Name(s) of union(s) if services are being performed under collective bargaining agreement(s). **Important:** Attach copies of current applicable collective bargaining agreements

None

RESPONSE TO NOTICE

(by Department of Labor)

A. ☒ The attached wage determination(s) listed below apply to procurement.

WD 2005-2516 Rev 13

B. ☐ As of this date, no wage determination applicable to the specified locality and

9. OFFICIAL SUBMITTING NOTICE

SIGNED:

Original signed by

DATE

10-03-08

NNJ09GA18B
Modification 21

SECTION J

Attachment J-2

PROGRAM INTEGRATION AND CONTROL

classes of employees is in effect.

TYPE OR PRINT NAME

Herb Rocha

Contract Labor Relations Officer

TELEPHONE NO.

281-244-5855

10. TYPE OR PRINT NAME AND TITLE OF PERSON TO WHOM RESPONSE IS TO BE SENT
AND NAME AND ADDRESS OF DEPARTMENT OR AGENCY, BUREAU, DIVISION, ETC.

NASA Johnson Space Center
Herb Rocha, Mail Code BD
2101 NASA Parkway
Houston, TX 77058

C. ☐ From information supplied, the Service
Contract Act does not apply (*see attached
explanation*).

D. ☐ Notice returned for additional
information
(*see attached explanation*)

Signed: _____
(*U.S. Department of Labor*)

(*Date*)

98-103

COMPUTER-GENERATED

1/96

NNJ09GA18B

SECTION J
Attachment J-2

PROGRAM INTEGRATION AND CONTROL

STANDARD FORM e98a February 1973 U.S. DEPARTMENT OF LABOR Employment Standards Administration	NOTICE OF INTENTION TO MAKE A SERVICE CONTRACT AND RESPONSE TO NOTICE (Attachment A)		11. Notice No. NASA 74809
12. CLASSES OF SERVICE EMPLOYEES TO BE EMPLOYED ON CONTRACT Harris County, TX; 2005-2516, Occupations included in "SCA Directory of Occupations"	13. NUMBER OF EMPLOYEES IN EACH CLASS	14. HOURLY WAGE RATE THAT WOULD BE PAID IF FEDERALLY EMPLOYED	
Secretary, I	3	GS-4 \$16.59	
General Clerk, II	1	GS-3 \$13.27	
Computer Operator, I	5	GS-4 \$17.31	
Document Preparation Clerk	1	GS-3 \$13.41	

WD 05-2516 (Rev.-13) was first posted on www.wdol.gov on 06/22/2010

REGISTER OF WAGE DETERMINATIONS UNDER
THE SERVICE CONTRACT ACT
By direction of the Secretary of Labor

U.S. DEPARTMENT OF LABOR
EMPLOYMENT STANDARDS ADMINISTRATION
WAGE AND HOUR DIVISION
WASHINGTON D.C. 20210

Shirley F. Ebbesen Division of
Director Wage Determinations

Wage Determination No.: 2005-2516
Revision No.: 13
Date Of Revision: 06/15/2010

State: Texas

Area: Texas Counties of Austin, Brazoria, Chambers, Colorado, Fort Bend,
Galveston, Grimes, Harris, Houston, Jackson, Lavaca, Liberty, Madison,
Matagorda, Montgomery, San Jacinto, Trinity, Walker, Waller, Washington,
Wharton

****Fringe Benefits Required Follow the Occupational Listing****

OCCUPATION CODE - TITLE	FOOTNOTE	RATE
01000 - Administrative Support And Clerical Occupations		
01011 - Accounting Clerk I		14.98
01012 - Accounting Clerk II		16.82
01013 - Accounting Clerk III		18.82
01020 - Administrative Assistant		25.91
01040 - Court Reporter		21.79
01051 - Data Entry Operator I		13.24
01052 - Data Entry Operator II		14.45
01060 - Dispatcher, Motor Vehicle		15.96
01070 - Document Preparation Clerk		13.41
01090 - Duplicating Machine Operator		13.41
01111 - General Clerk I		11.88
01112 - General Clerk II		13.27
01113 - General Clerk III		14.90
01120 - Housing Referral Assistant		20.69
01141 - Messenger Courier		12.55
01191 - Order Clerk I		13.52
01192 - Order Clerk II		15.24
01261 - Personnel Assistant (Employment) I		15.43
01262 - Personnel Assistant (Employment) II		17.27
01263 - Personnel Assistant (Employment) III		19.25
01270 - Production Control Clerk		19.10
01280 - Receptionist		12.02
01290 - Rental Clerk		14.75
01300 - Scheduler, Maintenance		16.59
01311 - Secretary I		16.59
01312 - Secretary II		18.57
01313 - Secretary III		20.69
01320 - Service Order Dispatcher		15.16
01410 - Supply Technician		25.91
01420 - Survey Worker		17.79
01531 - Travel Clerk I		13.71
01532 - Travel Clerk II		14.81
01533 - Travel Clerk III		15.83
01611 - Word Processor I		14.29
01612 - Word Processor II		16.04

PROGRAM INTEGRATION AND CONTROL

01613 - Word Processor III	17.95
05000 - Automotive Service Occupations	
05005 - Automobile Body Repairer, Fiberglass	25.76
05010 - Automotive Electrician	23.79
05040 - Automotive Glass Installer	21.96
05070 - Automotive Worker	21.96
05110 - Mobile Equipment Servicer	20.23
05130 - Motor Equipment Metal Mechanic	25.76
05160 - Motor Equipment Metal Worker	21.96
05190 - Motor Vehicle Mechanic	25.76
05220 - Motor Vehicle Mechanic Helper	19.40
05250 - Motor Vehicle Upholstery Worker	20.83
05280 - Motor Vehicle Wrecker	21.96
05310 - Painter, Automotive	23.79
05340 - Radiator Repair Specialist	22.88
05370 - Tire Repairer	14.40
05400 - Transmission Repair Specialist	25.76
07000 - Food Preparation And Service Occupations	
07010 - Baker	10.06
07041 - Cook I	9.52
07042 - Cook II	10.88
07070 - Dishwasher	8.11
07130 - Food Service Worker	9.12
07210 - Meat Cutter	12.91
07260 - Waiter/Waitress	8.19
09000 - Furniture Maintenance And Repair Occupations	
09010 - Electrostatic Spray Painter	18.32
09040 - Furniture Handler	11.95
09080 - Furniture Refinisher	17.70
09090 - Furniture Refinisher Helper	14.58
09110 - Furniture Repairer, Minor	16.82
09130 - Upholsterer	18.32
11000 - General Services And Support Occupations	
11030 - Cleaner, Vehicles	9.90
11060 - Elevator Operator	8.82
11090 - Gardener	14.52
11122 - Housekeeping Aide	8.84
11150 - Janitor	8.84
11210 - Laborer, Grounds Maintenance	10.93
11240 - Maid or Houseman	7.96
11260 - Pruner	9.25
11270 - Tractor Operator	12.82
11330 - Trail Maintenance Worker	10.93
11360 - Window Cleaner	9.81
12000 - Health Occupations	
12010 - Ambulance Driver	15.00
12011 - Breath Alcohol Technician	15.64
12012 - Certified Occupational Therapist Assistant	23.69
12015 - Certified Physical Therapist Assistant	24.52
12020 - Dental Assistant	15.64
12025 - Dental Hygienist	32.93
12030 - EKG Technician	25.92
12035 - Electroneurodiagnostic Technologist	25.92
12040 - Emergency Medical Technician	15.00

PROGRAM INTEGRATION AND CONTROL

12071 - Licensed Practical Nurse I	19.05
12072 - Licensed Practical Nurse II	21.32
12073 - Licensed Practical Nurse III	23.76
12100 - Medical Assistant	12.50
12130 - Medical Laboratory Technician	16.63
12160 - Medical Record Clerk	14.53
12190 - Medical Record Technician	16.57
12195 - Medical Transcriptionist	16.81
12210 - Nuclear Medicine Technologist	35.13
12221 - Nursing Assistant I	8.57
12222 - Nursing Assistant II	10.36
12223 - Nursing Assistant III	11.31
12224 - Nursing Assistant IV	12.69
12235 - Optical Dispenser	16.79
12236 - Optical Technician	15.29
12250 - Pharmacy Technician	19.18
12280 - Phlebotomist	13.30
12305 - Radiologic Technologist	26.70
12311 - Registered Nurse I	30.36
12312 - Registered Nurse II	38.37
12313 - Registered Nurse II, Specialist	38.37
12314 - Registered Nurse III	44.91
12315 - Registered Nurse III, Anesthetist	44.91
12316 - Registered Nurse IV	53.84
12317 - Scheduler (Drug and Alcohol Testing)	21.85
13000 - Information And Arts Occupations	
13011 - Exhibits Specialist I	19.30
13012 - Exhibits Specialist II	24.74
13013 - Exhibits Specialist III	28.94
13041 - Illustrator I	19.30
13042 - Illustrator II	23.91
13043 - Illustrator III	30.12
13047 - Librarian	26.69
13050 - Library Aide/Clerk	10.84
13054 - Library Information Technology Systems Administrator	24.09
13058 - Library Technician	16.04
13061 - Media Specialist I	17.39
13062 - Media Specialist II	19.46
13063 - Media Specialist III	21.68
13071 - Photographer I	15.32
13072 - Photographer II	18.15
13073 - Photographer III	22.56
13074 - Photographer IV	27.49
13075 - Photographer V	33.07
13110 - Video Teleconference Technician	16.73
14000 - Information Technology Occupations	
14041 - Computer Operator I	17.31
14042 - Computer Operator II	19.37
14043 - Computer Operator III	21.59
14044 - Computer Operator IV	24.00
14045 - Computer Operator V	26.57
14071 - Computer Programmer I	(see 1) 26.04
14072 - Computer Programmer II	(see 1)

PROGRAM INTEGRATION AND CONTROL

14073 - Computer Programmer III	(see 1)	
14074 - Computer Programmer IV	(see 1)	
14101 - Computer Systems Analyst I	(see 1)	
14102 - Computer Systems Analyst II	(see 1)	
14103 - Computer Systems Analyst III	(see 1)	
14150 - Peripheral Equipment Operator		17.31
14160 - Personal Computer Support Technician		24.00
15000 - Instructional Occupations		
15010 - Aircrew Training Devices Instructor (Non-Rated)		33.08
15020 - Aircrew Training Devices Instructor (Rated)		40.02
15030 - Air Crew Training Devices Instructor (Pilot)		47.98
15050 - Computer Based Training Specialist / Instructor		33.08
15060 - Educational Technologist		29.23
15070 - Flight Instructor (Pilot)		47.98
15080 - Graphic Artist		26.72
15090 - Technical Instructor		22.43
15095 - Technical Instructor/Course Developer		27.43
15110 - Test Proctor		18.43
15120 - Tutor		18.43
16000 - Laundry, Dry-Cleaning, Pressing And Related Occupations		
16010 - Assembler		9.40
16030 - Counter Attendant		9.40
16040 - Dry Cleaner		12.06
16070 - Finisher, Flatwork, Machine		9.40
16090 - Presser, Hand		9.40
16110 - Presser, Machine, Drycleaning		9.40
16130 - Presser, Machine, Shirts		9.40
16160 - Presser, Machine, Wearing Apparel, Laundry		9.40
16190 - Sewing Machine Operator		12.79
16220 - Tailor		13.75
16250 - Washer, Machine		10.32
19000 - Machine Tool Operation And Repair Occupations		
19010 - Machine-Tool Operator (Tool Room)		19.71
19040 - Tool And Die Maker		23.23
21000 - Materials Handling And Packing Occupations		
21020 - Forklift Operator		13.25
21030 - Material Coordinator		19.46
21040 - Material Expediter		19.46
21050 - Material Handling Laborer		12.26
21071 - Order Filler		11.47
21080 - Production Line Worker (Food Processing)		13.25
21110 - Shipping Packer		14.60
21130 - Shipping/Receiving Clerk		14.60
21140 - Store Worker I		11.34
21150 - Stock Clerk		16.06
21210 - Tools And Parts Attendant		13.58
21410 - Warehouse Specialist		13.25
23000 - Mechanics And Maintenance And Repair Occupations		
23010 - Aerospace Structural Welder		29.47
23021 - Aircraft Mechanic I		28.07
23022 - Aircraft Mechanic II		29.47
23023 - Aircraft Mechanic III		30.94
23040 - Aircraft Mechanic Helper		21.98
23050 - Aircraft, Painter		25.61

PROGRAM INTEGRATION AND CONTROL

23060 - Aircraft Servicer	24.44
23080 - Aircraft Worker	25.76
23110 - Appliance Mechanic	18.61
23120 - Bicycle Repairer	13.91
23125 - Cable Splicer	25.34
23130 - Carpenter, Maintenance	19.71
23140 - Carpet Layer	18.45
23160 - Electrician, Maintenance	26.51
23181 - Electronics Technician Maintenance I	21.28
23182 - Electronics Technician Maintenance II	23.89
23183 - Electronics Technician Maintenance III	25.10
23260 - Fabric Worker	17.17
23290 - Fire Alarm System Mechanic	19.95
23310 - Fire Extinguisher Repairer	15.88
23311 - Fuel Distribution System Mechanic	20.96
23312 - Fuel Distribution System Operator	16.33
23370 - General Maintenance Worker	18.08
23380 - Ground Support Equipment Mechanic	28.07
23381 - Ground Support Equipment Servicer	24.44
23382 - Ground Support Equipment Worker	25.76
23391 - Gunsmith I	15.88
23392 - Gunsmith II	18.45
23393 - Gunsmith III	20.81
23410 - Heating, Ventilation And Air-Conditioning Mechanic	21.04
23411 - Heating, Ventilation And Air Contditioning Mechanic (Research Facility)	21.95
23430 - Heavy Equipment Mechanic	19.79
23440 - Heavy Equipment Operator	19.26
23460 - Instrument Mechanic	25.87
23465 - Laboratory/Shelter Mechanic	19.71
23470 - Laborer	11.04
23510 - Locksmith	18.99
23530 - Machinery Maintenance Mechanic	24.33
23550 - Machinist, Maintenance	20.81
23580 - Maintenance Trades Helper	14.94
23591 - Metrology Technician I	25.87
23592 - Metrology Technician II	26.99
23593 - Metrology Technician III	28.14
23640 - Millwright	21.53
23710 - Office Appliance Repairer	18.99
23760 - Painter, Maintenance	18.99
23790 - Pipefitter, Maintenance	21.38
23810 - Plumber, Maintenance	20.88
23820 - Pneudraulic Systems Mechanic	20.81
23850 - Rigger	20.81
23870 - Scale Mechanic	18.45
23890 - Sheet-Metal Worker, Maintenance	19.95
23910 - Small Engine Mechanic	18.08
23931 - Telecommunications Mechanic I	23.89
23932 - Telecommunications Mechanic II	24.95
23950 - Telephone Lineman	25.52
23960 - Welder, Combination, Maintenance	20.27
23965 - Well Driller	20.81

PROGRAM INTEGRATION AND CONTROL

23970 - Woodcraft Worker	20.81
23980 - Woodworker	15.04
24000 - Personal Needs Occupations	
24570 - Child Care Attendant	10.65
24580 - Child Care Center Clerk	13.27
24610 - Chore Aide	7.35
24620 - Family Readiness And Support Services Coordinator	13.83
24630 - Homemaker	16.84
25000 - Plant And System Operations Occupations	
25010 - Boiler Tender	22.20
25040 - Sewage Plant Operator	18.70
25070 - Stationary Engineer	22.20
25190 - Ventilation Equipment Tender	14.58
25210 - Water Treatment Plant Operator	18.32
27000 - Protective Service Occupations	
27004 - Alarm Monitor	16.14
27007 - Baggage Inspector	11.56
27008 - Corrections Officer	19.62
27010 - Court Security Officer	21.18
27030 - Detection Dog Handler	17.90
27040 - Detention Officer	19.62
27070 - Firefighter	20.41
27101 - Guard I	11.56
27102 - Guard II	17.90
27131 - Police Officer I	24.19
27132 - Police Officer II	26.88
28000 - Recreation Occupations	
28041 - Carnival Equipment Operator	11.63
28042 - Carnival Equipment Repairer	12.36
28043 - Carnival Equipment Worker	8.51
28210 - Gate Attendant/Gate Tender	13.90
28310 - Lifeguard	12.38
28350 - Park Attendant (Aide)	15.55
28510 - Recreation Aide/Health Facility Attendant	11.35
28515 - Recreation Specialist	17.83
28630 - Sports Official	12.38
28690 - Swimming Pool Operator	17.44
29000 - Stevedoring/Longshoremen Occupational Services	
29010 - Blocker And Bracer	20.12
29020 - Hatch Tender	20.12
29030 - Line Handler	20.12
29041 - Stevedore I	18.72
29042 - Stevedore II	21.50
30000 - Technical Occupations	
30010 - Air Traffic Control Specialist, Center (HFO) (see 2)	40.33
30011 - Air Traffic Control Specialist, Station (HFO) (see 2)	27.81
30012 - Air Traffic Control Specialist, Terminal (HFO) (see 2)	30.63
30021 - Archeological Technician I	21.56
30022 - Archeological Technician II	25.47
30023 - Archeological Technician III	30.62
30030 - Cartographic Technician	30.62
30040 - Civil Engineering Technician	30.03
30061 - Drafter/CAD Operator I	21.56

PROGRAM INTEGRATION AND CONTROL

30062 - Drafter/CAD Operator II	24.71
30063 - Drafter/CAD Operator III	27.56
30064 - Drafter/CAD Operator IV	33.10
30081 - Engineering Technician I	20.02
30082 - Engineering Technician II	22.48
30083 - Engineering Technician III	25.15
30084 - Engineering Technician IV	31.09
30085 - Engineering Technician V	38.65
30086 - Engineering Technician VI	46.10
30090 - Environmental Technician	29.96
30210 - Laboratory Technician	23.56
30240 - Mathematical Technician	30.62
30361 - Paralegal/Legal Assistant I	22.52
30362 - Paralegal/Legal Assistant II	27.90
30363 - Paralegal/Legal Assistant III	34.12
30364 - Paralegal/Legal Assistant IV	41.27
30390 - Photo-Optics Technician	30.62
30461 - Technical Writer I	23.21
30462 - Technical Writer II	28.38
30463 - Technical Writer III	34.93
30491 - Unexploded Ordnance (UXO) Technician I	25.63
30492 - Unexploded Ordnance (UXO) Technician II	31.01
30493 - Unexploded Ordnance (UXO) Technician III	37.17
30494 - Unexploded (UXO) Safety Escort	25.63
30495 - Unexploded (UXO) Sweep Personnel	25.63
30620 - Weather Observer, Combined Upper Air Or (see 2)	26.35
Surface Programs	
30621 - Weather Observer, Senior (see 2)	30.48
31000 - Transportation/Mobile Equipment Operation Occupations	
31020 - Bus Aide	11.88
31030 - Bus Driver	17.06
31043 - Driver Courier	14.03
31260 - Parking and Lot Attendant	9.17
31290 - Shuttle Bus Driver	15.28
31310 - Taxi Driver	11.54
31361 - Truckdriver, Light	15.28
31362 - Truckdriver, Medium	18.98
31363 - Truckdriver, Heavy	20.32
31364 - Truckdriver, Tractor-Trailer	20.32
99000 - Miscellaneous Occupations	
99030 - Cashier	10.01
99050 - Desk Clerk	11.72
99095 - Embalmer	23.71
99251 - Laboratory Animal Caretaker I	9.83
99252 - Laboratory Animal Caretaker II	10.71
99310 - Mortician	26.44
99410 - Pest Controller	15.80
99510 - Photofinishing Worker	12.62
99710 - Recycling Laborer	16.46
99711 - Recycling Specialist	20.06
99730 - Refuse Collector	14.67
99810 - Sales Clerk	12.66
99820 - School Crossing Guard	10.96
99830 - Survey Party Chief	20.96

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99831 - Surveying Aide	14.35
99832 - Surveying Technician	18.13
99840 - Vending Machine Attendant	12.00
99841 - Vending Machine Repairer	14.41
99842 - Vending Machine Repairer Helper	12.31

ALL OCCUPATIONS LISTED ABOVE RECEIVE THE FOLLOWING BENEFITS:

HEALTH & WELFARE: Life, accident, and health insurance plans, sick leave, pension plans, civic and personal leave, severance pay, and savings and thrift plans. Minimum employer contributions costing an average of \$3.50 per hour computed on the basis of all hours worked by service employees employed on the contract.

VACATION: 2 weeks paid vacation after 1 year of service with a contractor or successor; 3 weeks after 5 years, and 4 weeks after 15 years. Length of service includes the whole span of continuous service with the present contractor or successor, wherever employed, and with the predecessor contractors in the performance of similar work at the same Federal facility. (Reg. 29 CFR 4.173)

HOLIDAYS: A minimum of ten paid holidays per year, New Year's Day, Martin Luther King Jr's Birthday, Washington's Birthday, Memorial Day, Independence Day, Labor Day, Columbus Day, Veterans' Day, Thanksgiving Day, and Christmas Day. (A contractor may substitute for any of the named holidays another day off with pay in accordance with a plan communicated to the employees involved.) (See 29 CFR 4174)

THE OCCUPATIONS WHICH HAVE NUMBERED FOOTNOTES IN PARENTHESES RECEIVE THE FOLLOWING:

1) COMPUTER EMPLOYEES: Under the SCA at section 8(b), this wage determination does not apply to any employee who individually qualifies as a bona fide executive, administrative, or professional employee as defined in 29 C.F.R. Part 541. Because most Computer System Analysts and Computer Programmers who are compensated at a rate not less than \$27.63 (or on a salary or fee basis at a rate not less than \$455 per week) an hour would likely qualify as exempt computer professionals, (29 C.F.R. 541.400) wage rates may not be listed on this wage determination for all occupations within those job families. In addition, because this wage determination may not list a wage rate for some or all occupations within those job families if the survey data indicates that the prevailing wage rate for the occupation equals or exceeds \$27.63 per hour conformances may be necessary for certain nonexempt employees. For example, if an individual employee is nonexempt but nevertheless performs duties within the scope of one of the Computer Systems Analyst or Computer Programmer occupations for which this wage determination does not specify an SCA wage rate, then the wage rate for that employee must be conformed in accordance with the conformance procedures described in the conformance note included on this wage determination.

Additionally, because job titles vary widely and change quickly in the computer industry, job titles are not determinative of the application of the computer

PROGRAM INTEGRATION AND CONTROL

professional exemption. Therefore, the exemption applies only to computer employees who satisfy the compensation requirements and whose primary duty consists of:

(1) The application of systems analysis techniques and procedures, including consulting with users, to determine hardware, software or system functional specifications;

(2) The design, development, documentation, analysis, creation, testing or modification of computer systems or programs, including prototypes, based on and related to user or system design specifications;

(3) The design, documentation, testing, creation or modification of computer programs related to machine operating systems; or

(4) A combination of the aforementioned duties, the performance of which requires the same level of skills. (29 C.F.R. 541.400).

2) AIR TRAFFIC CONTROLLERS AND WEATHER OBSERVERS - NIGHT PAY & SUNDAY PAY: If you work at night as part of a regular tour of duty, you will earn a night differential and receive an additional 10% of basic pay for any hours worked between 6pm and 6am.

If you are a full-time employed (40 hours a week) and Sunday is part of your regularly scheduled workweek, you are paid at your rate of basic pay plus a Sunday premium of 25% of your basic rate for each hour of Sunday work which is not overtime (i.e. occasional work on Sunday outside the normal tour of duty is considered overtime work).

HAZARDOUS PAY DIFFERENTIAL: An 8 percent differential is applicable to employees employed in a position that represents a high degree of hazard when working with or in close proximity to ordnance, explosives, and incendiary materials. This includes work such as screening, blending, dying, mixing, and pressing of sensitive ordnance, explosives, and pyrotechnic compositions such as lead azide, black powder and photoflash powder. All dry-house activities involving propellants or explosives.

Demilitarization, modification, renovation, demolition, and maintenance operations on sensitive ordnance, explosives and incendiary materials. All operations involving regrading and cleaning of artillery ranges.

A 4 percent differential is applicable to employees employed in a position that represents a low degree of hazard when working with, or in close proximity to ordnance, (or employees possibly adjacent to) explosives and incendiary materials which involves potential injury such as laceration of hands, face, or arms of the employee engaged in the operation, irritation of the skin, minor burns and the like; minimal damage to immediate or adjacent work area or equipment being used. All operations involving, unloading, storage, and hauling of ordnance, explosive, and incendiary ordnance material other than small arms ammunition. These differentials are only applicable to work that has been specifically designated by the agency for ordnance, explosives, and incendiary material differential pay.

**** UNIFORM ALLOWANCE ****

If employees are required to wear uniforms in the performance of this contract (either by the terms of the Government contract, by the employer, by the state or local law, etc.), the cost of furnishing such uniforms and maintaining (by laundering or dry cleaning) such uniforms is an expense that may not be borne by an employee where such cost reduces the hourly rate below that required by the wage determination. The Department of Labor will accept payment in accordance with the following standards as compliance:

PROGRAM INTEGRATION AND CONTROL

The contractor or subcontractor is required to furnish all employees with an adequate number of uniforms without cost or to reimburse employees for the actual cost of the uniforms. In addition, where uniform cleaning and maintenance is made the responsibility of the employee, all contractors and subcontractors subject to this wage determination shall (in the absence of a bona fide collective bargaining agreement providing for a different amount, or the furnishing of contrary affirmative proof as to the actual cost), reimburse all employees for such cleaning and maintenance at a rate of \$3.35 per week (or \$.67 cents per day). However, in those instances where the uniforms furnished are made of "wash and wear" materials, may be routinely washed and dried with other personal garments, and do not require any special treatment such as dry cleaning, daily washing, or commercial laundering in order to meet the cleanliness or appearance standards set by the terms of the Government contract, by the contractor, by law, or by the nature of the work, there is no requirement that employees be reimbursed for uniform maintenance costs.

The duties of employees under job titles listed are those described in the "Service Contract Act Directory of Occupations", Fifth Edition, April 2006, unless otherwise indicated. Copies of the Directory are available on the Internet. A links to the Directory may be found on the WHD home page at <http://www.dol.gov/esa/whd/> or through the Wage Determinations On-Line (WDOL) Web site at <http://wdol.gov/>.

REQUEST FOR AUTHORIZATION OF ADDITIONAL CLASSIFICATION AND WAGE RATE {Standard Form 1444 (SF 1444)}

Conformance Process:

The contracting officer shall require that any class of service employee which is not listed herein and which is to be employed under the contract (i.e., the work to be performed is not performed by any classification listed in the wage determination), be classified by the contractor so as to provide a reasonable relationship (i.e., appropriate level of skill comparison) between such unlisted classifications and the classifications listed in the wage determination. Such conformed classes of employees shall be paid the monetary wages and furnished the fringe benefits as are determined. Such conforming process shall be initiated by the contractor prior to the performance of contract work by such unlisted class(es) of employees. The conformed classification, wage rate, and/or fringe benefits shall be retroactive to the commencement date of the contract. {See Section 4.6 (C)(vi)} When multiple wage determinations are included in a contract, a separate SF 1444 should be prepared for each wage determination to which a class(es) is to be conformed.

The process for preparing a conformance request is as follows:

- 1) When preparing the bid, the contractor identifies the need for a conformed occupation(s) and computes a proposed rate(s).
- 2) After contract award, the contractor prepares a written report listing in order proposed classification title(s), a Federal grade equivalency (FGE) for each proposed classification(s), job description(s), and rationale for proposed wage rate(s), including information regarding the agreement or disagreement of the

PROGRAM INTEGRATION AND CONTROL

authorized representative of the employees involved, or where there is no authorized representative, the employees themselves. This report should be submitted to the contracting officer no later than 30 days after such unlisted class(es) of employees performs any contract work.

3) The contracting officer reviews the proposed action and promptly submits a report of the action, together with the agency's recommendations and pertinent information including the position of the contractor and the employees, to the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, for review. (See section 4.6(b)(2) of Regulations 29 CFR Part 4).

4) Within 30 days of receipt, the Wage and Hour Division approves, modifies, or disapproves the action via transmittal to the agency contracting officer, or notifies the contracting officer that additional time will be required to process the request.

5) The contracting officer transmits the Wage and Hour decision to the contractor.

6) The contractor informs the affected employees.

Information required by the Regulations must be submitted on SF 1444 or bond paper.

When preparing a conformance request, the "Service Contract Act Directory of Occupations" (the Directory) should be used to compare job definitions to insure that duties requested are not performed by a classification already listed in the wage determination. Remember, it is not the job title, but the required tasks that determine whether a class is included in an established wage determination. Conformances may not be used to artificially split, combine, or subdivide classifications listed in the wage determination.

PROGRAM INTEGRATION AND CONTROL

Attachment J-3

SAFETY

AND

HEALTH

Attachment J-4

IT MANAGEMENT & SECURITY PLANS

PROGRAM INTEGRATION AND CONTROL

ATTACHMENT J-5

SURVEILLANCE

PLAN

ATTACHMENT J-6

RESERVED

ATTACHMENT J-7

ACRONYMS

LIST

PROGRAM INTEGRATION AND CONTROL

Attachment J-7 – Acronym List

AC	Assembly Complete
ACES	Assessments, Cost Estimating and Schedules
ACO	Administrative Contracting Officer
ACP	Access Control Plan
ADP	Automatic Data Processing
AIS	Automated Information System
ANE	Advanced Notification of Export
ANSI	American National Standards Institute
AOE	Area of Emphasis
APM	Attached Pressurized Module
ASAP	Aerospace Safety Advisory Panel
ASDB	Application Service request Database
ASI	Agenzia Spaziale Italiana (Italian Space Agency)
ASR	Action Service Request (PI&C)
ATV	Automated Transfer Vehicle
BASEPLATE	Beta, Attitude, Significant Events, Planning Template
BDEALS	Bilateral Data Exchange Agreements, Lists and Schedules
BGA	Beta Gimble Assembly
BHSEALS	Bilateral Hardware and Software Exchange Agreements, Lists and Schedules
BIS	Bureau of Industry and Security
BIVP	Bilateral Integration and Verification Plan
BOE	Basis of Estimate
C&A	Certification and Accreditation
CAD	Computer Aided Design
CAM	Centrifuge Accommodation Module
CAM	Cost Accounting Manager
CAOT	Cognizant Audit Office Template
CAPPS	Checkout, Assembly and Payload Processing Services
CBA	Collective Bargaining Agreement
CBO	Central Budget Office
CCS	Center Chief of Security
CDR	Configuration Discrepancy Report
CDT	Central Daylight Time
CST	Central Standard Time

PROGRAM INTEGRATION AND CONTROL

CEA	Center Export Administrator
CEBT	Channelized Energy Balance Tool
CEI	Configuration End Item
CEV	Crew Exploration Vehicle
CEVIS	Cycle Ergometer with Vibration Isolation and Stabilization
CFR	Code of Federal Regulations
CI	Configuration Item
CIL	Critical Item List
CIO	Center/Chief Information Officer
CIP	Capital Investment Plan
CIR	Cargo Integration Review
CM	Configuration Management
CMRD	Configuration Management Receipt Desk
CMRS	Crew Medical Restraint System
CO	Contracting Officer
COB	Close of Business
CoFR	Certification of Flight Readiness
COSMOS	Configuration Status Management Operations System
COTR	Contracting Officer's Technical Representative
COTS	Commercial Off-the-Shelf
COTS	Commercial Orbital Transportation System
CPU	Computer Processing Unit
CR	Change Request
CSA	Canadian Space Agency
CSB	Change Screening Board
CSCI	Computer Software Configuration Item
CSD	Common Schedules Database
CUCU	COTS UHF Communications Unit
DACR	Days Away Case Rate
DART	Days Away plus Restricted Duty plus Job Transfer
DBMS	Database Management System
DC	Docking Compartment
DCM	Docking Compartment Module
DCN	Document Change Notices
DDCU	Direct Current to Direct Current Converter Unit
DID	Data Item Deliverable
DM	Data Management
DMI	Data Management and Integration
DoD	Department of Defense
DOT	Department of Transportation
DQA	Document Quality Assurance

PROGRAM INTEGRATION AND CONTROL

DR	Data Requirement
DRD	Data Requirement Description
DRL	Data Requirements List
EAR	Export Administration Regulation
ECCN	Export Classification Control Number
ECLSS	Environmental Control and Life Support System
EDMS	Electronic Document Management System
EIM	Element Integration Manager
EP	Equivalent Personnel
EPA	Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-Know Act
EPM	Excel Pricing Model
ERA	European Robotic Arm
ERU	Engineering Release Unit
ESA	European Space Agency
EST	Export Services Team
EVA	Extra Vehicular Activity
ExCATT	External Configuration Analysis and Tracking Tool
FAR	Federal Acquisition Regulation
FBR	Fully Burdened Rates Development Template
FC	Fingerprint Card
FCA	Functional Configuration Audit
FGB	Functional Cargo Block
FIPS PUB	Federal Information Processing Standards Publication
FMD	Financial Management Division
FMEA	Failure Mode and Effects Analysis
F.O.B.	Freight On Board
FOR	Flight Operations Review
FP	Flight Program
FSE	Flight Support Equipment
FTE	Full Time Equivalent
FY	Fiscal Year
G&A	General and Administrative
GAO	Government Accountability Office
GAT	G&A Template
GBL	Government Bill of Lading
GFD	Government Furnished Data
GFE	Government Furnished Equipment
GFP	Government Furnished Property

PROGRAM INTEGRATION AND CONTROL

GN&C	Guidance, Navigation, and Control
GOV	Government
GGR&C	Generic Groundrules, Requirements and Constraints
GSA	General Services Administration
HATS	Hazard Abatement Tracking System
HHRS	Hardware History Retrieval System
HITS	Hardware Interfaces Tracking System
HSI	Hardware and Software Integration
HSPD	Homeland Security Presidential Directive
HTV	H-II Transfer Vehicle
ICD	Interface Control Document
ICMT	International Configuration Management Telecon
ICWG	Interface Control Working Group
ID	Identification
IDIQ	Indefinite Delivery Indefinite Quantity
IDMS	ISS Data Management System
IDRD	Increment Definition and Requirements Document
IEBT	Integrated Energy Balance Tool
IEMP	Integrated Enterprise Management Program
IFM	Integrated Financial Management
IFM	Interface Memorandums
IG	Inspector General
IGES	Initial Graphic Exchange Specification
IIR	Independent Implementation Review
IMC	Increment Management Center
IMCE	ISS Management and Cost Evaluation
IMCOH	ISS Management Center Operations Handbook
IMOC	Integrated Mission Operations Contract
IMR	Integrated Management Review
IOMS	Integrated Office Management System
IP	International Partner
IPO	Industrial Property Officer
IPOD	ISS Program Operations Description
IP/P	International Partner/Participant
IPS	Integrated Program Schedule
IPSP	Integrated Program Schedule Panel
IRC	Internal Revenue Code
IRIS	Incident Reporting Information System
IRMA	Integrated Risk Management Application
IRD	Interface Requirements Documents

PROGRAM INTEGRATION AND CONTROL

IRD	Information Resources Directorate
IREDD	Interim Resistive Exercise Device
IRLS	Integrated Resource Loaded Schedule
IRS	Internal Revenue Service
ISPR	International Standard Payload rack
ISS	International Space Station
IST	Integrated Systems Test
IT	Information Technology
ITA	Interdivisional Technical Agreement
ITAR	International Traffic in Arms Regulation
ITS	Integrated Truss Segment
IVA	Intra-Vehicular Activity
IVC	Internal Volume Configuration
IVCWG	Internal Volume Configuration Working Group
JARSWG	Joint American/Russian Safety Working Group
JAXA	Japan Aerospace Exploration Agency
JEM	Japanese Experiment Module
JPD	Joint Program Directive
JPD	JSC Procedural Directive (Document number prefix)
JSC	Johnson Space Center
JTWG	Joint Technical Working Group
KPPI	Key Program Performance Indicator
KSC	Kennedy Space Center
LCC	Life Cycle Cost
LLDB	Lessons Learned Database
LLI	Limited Life Item
LLIS	Lessons Learned Information System
LOE	Level of Effort
LPA	Launch Package Assessment
LPM	Launch Package Manager
MA&RM	Mission Assurance and Risk Management
MD	Management Directive
MEIT	Multiple Element Integration Test
MEL	Mandatory Evaluators List
MER	Mission Evaluation Room
MFR	Mission Focus Review
MIM	Multi-Increment Manifest
MIP	Mission Integration Plan

PROGRAM INTEGRATION AND CONTROL

MIS	Management Information System
MLM	Multipurpose Logistics Module
MOD	Mission Operations Directorate
MODGEN	Model Generator
MOU	Memorandum of Understanding
MPLM	Mini Pressurized Logistics Module
MRM	Mini Research Module
MSDS	Material Safety Data Sheet
MSFC	Marshall Space Flight Center
MSS	Mobile Servicing System
N3	Node 3
NAC	NASA Advisory Council
NAICS	North America Industry Classification System
NARA	National Archives and Records Administration
NASA	National Aeronautics and Space Administration
NASDA	National Space Development Agency of Japan
NDC	Notice of Document Change
NEMS	NASA Equipment Management System
NESS	NF1018 Electronic Submission System
NEQA	NASA Engineering Quality Audit
NF	NASA Form
NFNMS	NASA Foreign National Management System
NFS	NASA FAR Supplement
NLT	No Later Than
NPR	NASA Procedural Requirements
NSSC	NASA Shared Services Center
NSTS	National Space Transportation System
NTE	Not To Exceed
OBSS	Orbiter Boom Sensor System
OCI	Organizational Conflict of Interest
OCIO	Organization Chief Information Officer
OCS	Orbital Control System
OCWG	On-Orbit Configuration Working Group
ODC	Other Direct Costs
OFCCP	Office of Federal Contract Compliance Programs
OHT	Overhead Template
OMB	Office of Management and Budget
OMRSD	Operations and Maintenance Requirements Specification Document
OPMT	Open Paper Management Tool
OPR	Office of Primary Responsibility

PROGRAM INTEGRATION AND CONTROL

ORCA	Online Representations and Certification Application
ORU	Orbital Replacement Unit
ORUDD	Orbital Replacement Unit Data Dictionary
OS	Operating System
OSCO	Organization Computer Security Officer
OSD	Operations Summary Document
OSE	Orbital Support Equipment
OSHA	Occupational Safety and Health Administration
PCA	Physical Configuration Audit
PDGF	Power and Data Grapple Fixture
PDIT	Program Data Integration Team
PDRS	Payload Deployment Retrieval System
PDS	PRACA Data System
PEP	Performance Evaluation Profile
PI&C	Program Integration and Control
PIDS	Prime Item Development Specification
PIER	Post-Increment Evaluation Report
PIRN	Preliminary Interface Revision Notices
PIT	Phase In Template
PKI	Public Key Infrastructure
PMA	Pressurized Mating Adapter
PMB	Performance Measurement Baseline
PMI&VP	Program Master Integration and Verification Plan
PMR	Performance Management Reviews
POA&M	Plan of Actions and Milestones
POC	Points of Contact
PP&C	Program Planning and Control
PPBE	Program Planning Budgeting and Execution
PPD	Partner Program Directive
PPE	Personal Protective Equipment
PQR	Post Qualification Review
PRA	Probabilistic Risk Assessment
PRACA	Problem Reporting and Corrective Action
PRMS	Program Risk Management System
QD	Quick Disconnect
QMS	Quality Management System
R&D	Research and Development
R&M	Reliability and Maintainability
RCRA	Resource Conservation and Recovery Act

PROGRAM INTEGRATION AND CONTROL

RDD	Requirements Definition Document
RID	Review Items Discrepancies
RLLS	Russian Language and Logistic Services
Roscosmos	Federal Space Agency (Russia)
RS	Russian Segment
RSA	Russian Space Agency
RSC-E	Rocket Space Corporation-Energia
RTM	Requirements Traceability Management
RWS	Robotic Work Station
S&H	Safety and Health
S&MA	Safety and Mission Assurance
SAPHIRE	Systems Analysis Programs for Hands-on Integrated Reliability Evaluations
SARJ	Solar Array Rotary Joint
SBA	Small Business Administration
SCCR	Station Cargo Certification Reviews
SCEPTER	Station Channelized Electrical Power Transfer and Energy Resources
SCROALE	Schedule of Crew Rotation, On-orbit Assembly, Logistics, and EVA
SCT	Summary Cost Template
SCTF	Sonny Carter Training Facility
SE	Sub element Number
SE&I	System Engineering and Integration
SEMO	Supply and Equipment Management Officer
SF	Standard Form
SFAC	Space Flight Advisory Committee
SFP	Strategic Flight Plan
SIBC	Strategic Investment Business Case
SIR	Stage Integration Review
SIT	SIR Issue Tracking
SM	Service Module
SMD	Security Management Directive
SODB	Shuttle/Station Operations Data Book
SOP	Standard Operating Procedure
SORR	Stage Operations Readiness Review
SOW	Statement of Work
SPDM	Special Purpose Dexterous Manipulator
SPEARMAN	Strategic Planning Evaluation And Resource Model ANalysis
SPICE	Space Program Integrated Contract Environment
SPIP	Station Program Implementation Plan
SPOC	Space Program Operations Contract
SPRT	System Problem Resolution Team
SR	Service Request (ODIN)

PROGRAM INTEGRATION AND CONTROL

SRP	Safety Review Panel
SR&QA	Safety, Reliability and Quality Assurance
SSACS	Space Station Analysis Coordinate System
SSODB	Space Station Operations Data Book
SSUAS	Space Station Utilization Advisory Subcommittee
SSAV	Space Station Accounting and Verification
SSCN	Space Station Change Notice
SSMB	Space Station Manned Base
SSRMS	Space Station Remote Manipulator System
SSP	System Security Plan
SSP	Space Shuttle Program
SSPF	Space Station Processing Facility
STRAP	Station Reboost Analysis Program
STTCP	Security/Technology Control Plan
SWG	Systems Working Group
T&V	Test and Verification
TBD	To Be Determined
TC (a)	Compensation Template (a) Salaries & Wages – Non-Exempt
TC (b)	Compensation Template (b) Salaries & Wages – Exempt
TC (c)	Compensation Template (c) Fringe Benefits Analysis Package
TC (d)	Compensation Template (d) Personnel and Fringe Benefits Policies
TC (e)	Compensation Template (e) Incumbency Assumptions
TCM	Technical Coordination Meeting
TIM	Technical Interchange Meeting
TMP	Temporary Exports
TMR	Technical Monitor Representative
TPS	Total Propellant Summary
TRAM	Traffic Resource Analysis Model
TRIR	Total Recordable Injury Rate
TRRJ	Thermal Radiator Rotary Joint
TSP	Thermal System Performance
UDM	Unpressurized Docking Module
UHF	Ultra High Frequency
U.S.	United States
USC	United States Code
USL	United States Laboratory
USOS	United States On-Orbit Segment
USPPI	U.S. Principal party in Interest
VCB	Vehicle Control Board

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VCN	Verification Closure Notice
VDI	Vehicle Data Integration
VID	VIPER Interface Document
VIPER	Vehicle Integrated Performance and Resources
VMDB	Vehicle Master Data Base
VPP	Voluntary Protection Program
WBS	Work Breakdown Structure
WD	Wage Determination
WDOL	Wage Determinations On-Line
WSTF	White Sands Testing Facility
WYE	Work Year Equivalent
XPOP	X-Axis Perpendicular to the Orbit Plane

PROGRAM INTEGRATION AND CONTROL

ATTACHMENT J-8

APPLICABLE

AND

REFERENCE

DOCUMENTS

LISTING

PROGRAM INTEGRATION AND CONTROL

Attachment J-8 - Applicable and Reference Document Lists

This attachment contains applicable documents for the contract effort. The contractor shall comply with these requirements in performing SOW requirements. This attachment is structured as follows:

Table J8-1: Applicable Documents List

Table J8-2: Reference Documents List

The documents identified within Table J8-1 are cited within the body of this contract or within a document that is cited in this contract (second tier). Requirements written in these documents have full force and effect as if their text were written in this contract to the extent that the requirements relate to context of the work to be performed within the scope of this contract. When a document is classified as "reference", the document is provided for information about the ISS Program execution and the Program Integration and Control's role in the ISS Program.

The general approach for interpreting whether a document impacts the contractor's performance is that if a document is "applicable", then the contractor has solid requirements that derive from that document. Applicable documents contain additional requirements and are considered binding to the extent specified. Applicable documents shall be cited in the text of the document in a manner that indicates applicability such as follows:

- in accordance with
- as stated in
- as specified in
- as defined in
- per
- in conformance with

When a document is classified as "reference", the document is provided for general context of the ISS Program execution and for influence on the performance of the Program Integration and Control contract in its role of support to the ISS Program. Sample documentation that may be used or produced by the contractor is included as reference documents to allow the contractor to gain insight into the Program Integration and Control functions and products. Reference documents shall not contain additional requirements and will not be considered binding. Citations of Reference documents shall clearly indicate that the material is for information or reference only such as follows:

- reference
- using (as a guide)
- for additional information

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Table J8-1: Applicable Documents List

Document Number	Title
D684-10097-01	Guidelines and Procedures for the conduct of Functional Configuration Audit (FCA)/ Physical Configuration Audit (PCA)
FED-STD-313	Federal Standard 313
FIPS PUB 199	Standards for Security Categorization of Federal Information and Information Systems
FIPS PUB 201	Personal Identity Verification (PIV) of Federal Employees and Contractors
HSPD 12	Homeland Security Presidential Directive - Policy for a Common Identification Standard for Federal Employees and Contractors
ISSP-MD-114	Guidelines for Travel to Russia and from Russia to Support Meetings
ITS-SOP-0005	Procedure for Completing a NASA Information Technology Security Program or System Assessment
ITS-SOP-0009	Procedures for Updating and Managing NASA's Plan of Actions and Milestones
ITS-SOP-0019	Procedure for FIPS 199 Categorization of Information Systems
ITS-SOP-0030	IT System Certification and Accreditation Process for FIPS 199 Moderate and High Systems
ITS-SOP-0032	Master Information Technology Security Plan Template, Requirements, Guidance and Examples
ITS-SOP-0033	External System Identification and IT Security Requirements
ITS-SOP-0040	Contingency Planning Guidance
ITS-SOP-0043	Procedures for Selecting and Tailoring NIST 800-53 Common Security Controls
J69W-01	Real Property Management
J69W-02	Facility Space Allocation and Utilization
JPD 306	Establishment of the Program Risk Management Plan (PRMS)
JPD 4310.1	National Historic Landmark Preservation
JPG 5151	Support Contractors Handbook
JPG 5151.2	Johnson Space Center Support Contractor Procedures and Guidelines
JPR 1700.1	JSC Safety and Health Handbook
JPR 2310.1	JSC Organizational Learning Program
JSC 17773	Preparing of Hazard Analyses for JSC Ground Operations

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Document Number	Title
MFR 137	JSC Mission Focus Review (MFR) 137 Policy Document
MGT-OH-018	On-Orbit CDR Resolution Process
NIST 800-18	Guide for Developing Plans for Federal Information Systems
NIST 800-30	Risk Management Guide for International Technology Systems
NIST 800-34	Contingency Planning Guide for Information Technology Systems
NIST 800-37	Guide for the Security Certification and Accreditation of Federal Information Systems
NIST 800-53	Guide for Assessing the Security Controls in Federal Information Systems
NIST 800-60 Volume 1	Guide for Mapping Types of Information and Information Systems to System Categories
NIST 800-60 Volume 2	Appendixes to Guide for Mapping Types of Information and Information Systems to System Categories
NITR 2810-12	NASA Information Technology Requirements: Continuous Monitoring
NITR 2810-15	NASA Information Technology Requirements: Continuous Planning
No Number	Government Information Security Reform Act of 2000
No Number	Section 508, Rehabilitation Act of 1974
No Number	Service Contract Act of 1965
No Number	ISS Management Center Operations Handbook (IMCOH)
NPD 1440.6	NASA Records Management
NPD 2810.1	NASA Information Security Policy
NPD 8800.14	Policy for Real Property Management
NPR 1441.1	NASA Records Retention Schedule
NPR 1600.1	NASA Security Program Procedural Requirements
NPR 1600.2	NASA Security Policy
NPR 1620.1	NASA Security Procedures and Guidelines
NPR 1620.2	Physical Security Vulnerability Risk Assessments
NPR 1620.3	Physical Security Requirements for NASA Facilities and Property
NPR 2810.1A	Security of Information Technology

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Document Number	Title
NPR 4100.1	NASA Materials Inventory Management Manual
NPR 4200.1	NASA Equipment Management Manual
NPR 4300.1	NASA Personal Property Disposal Procedures and Guidelines
NPR 6000.1G	Requirements for Packaging, Handling, and Transportation for Aeronautical and Space Systems, Equipment, and Associated Components
NPR 7120.5	NASA Program and Project Management Processes and Requirements
NPR 7120.7	NASA Information Technology and Institutional Infrastructure Program and Project Management Requirements
NPR 8000.4	Risk Management Procedures and Guidelines
NPR 8621.1	Procedural Requirements for Mishap Reporting, Investigating, and Record keeping
NPR 8705.4	Risk Classification for NASA Payloads
NPR 8705.5	PRA Guidelines for NASA Programs and Projects
NPR 8715.3	NASA Safety Manual
NPR 8831.2	Facility Maintenance Management
NSTS-21000-IDD-ISS	Shuttle Orbiter/International Space Station Interface Definition Document
OB-MER-006	ISS Mission Evaluation Room (MER) Handbook
OH-WI-017	International Space Station Configuration Management (CM) Directive Work Instruction
OMB Circular A-130	Management of Federal Information Resources, Appendix III, Security of Federal Automated Information Resources
OMB Circular A130 Appendix III	Management of Federal Information Resources, Appendix III provides guidance on "Security of Federal Automated Information Systems"
OMB M-05-24	Implementation of HSPD-12: Policy for a Common Identification Standard for Federal Employees and Contractors
OSHA CSP03-01-003	VPP Policies and Procedures Manual
P-IM-114	Project Planning Process
PPD 522	Space Station Control Board/Panel Operations Policy
Public Law 100-235	Computer Security Act of 1987
SAE AS9100	Quality Systems - Aerospace - Model for Quality Assurance in Design, Development, Production, Installation, and Servicing
SMD 500-15	Security Termination Procedures
SSP 30219	ISS Reference Coordinate Systems Document
SSP 30223	Problem Reporting and Corrective Action (PRACA) for Space Station Program
SSP 30309	Safety and Risk Assessment and Requirements Document

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Document Number	Title
SSP 30459	ISS Interface Control Plan
SSP 30599	Safety Review Process
SSP 30695	Acceptance Data Package Requirements Specification
SSP 41170	Configuration Management Requirements
SSP 41173	Space Station Quality Assurance Requirements
SSP 41174	ISS Interface Control Working Group (ICWG) Operating Procedures
SSP 50005	ISS Flight Crew Integration Standards
SSP 50010	Standards for ISS Program Documentation
SSP 50013	ISS Information Systems Plan
SSP 50021	Safety Requirements Document
SSP 50108	Certification of Flight Readiness Process Document
SSP 50110	Multi-Increment Manifest
SSP 50112	Operations Summary Document
SSP 50123	Configuration Management Handbook
SSP 50123-CSA	Configuration Management Handbook Canadian Space Agency Annex
SSP 50123-ESA	Configuration Management Handbook European Space Agency Annex
SSP 50123-ASI	Configuration Management Handbook Agenzia Spaziale Italiana Agency Annex
SSP 50123-JAXA	Configuration Management Handbook Japan Aerospace Exploration Agency Annex
SSP 50123-RSA	Configuration Management Handbook Federal Space Agency Annex
SSP 50124	NASA/CSA Bilateral Data Exchange Agreements, Lists and Schedules (BDEALS)
SSP 50126	NASA/JAXA Bilateral Data Exchange Agreements, Lists and Schedules (BDEALS) for the Japanese Experiment Module (JEM)
SSP 50127	NASA/ESA Bilateral Data Exchange Agreements, Lists, and Schedules (BDEALS) for Columbus
SSP 50135	ISS Interface Control Plan – NASA/RSA
SSP 50136	NASA/RSA Bilateral Hardware and Software Agreements, Lists and Schedules (BHSEALS)
SSP 50137	NASA/RSA Bilateral Data Exchange Agreements, Lists and Schedules (BDEALS)
SSP 50172	Data Management Handbook
SSP 50175	ISS Risk Management Plan
SSP 50177	Government Furnished Data (GFD) Description Document
SSP 50200-01	Station Program Implementation Plan (SPIP) Volume 1: Station Program Management Plan
SSP 50200-02	Station Program Implementation Plan (SPIP) Volume 2, Program Planning and Manifesting

PROGRAM INTEGRATION AND CONTROL

Document Number	Title
SSP 50220	NASA/CSA Bilateral Hardware and Software Exchange Agreements, Lists and Schedules (BHSEALS)
SSP 50222	ISS Program Capital Investment Process (CIP)
SSP 50261-01	Generic Ground rules, Requirements, and Constraints Part 1: Strategic and Tactical Planning (GGR&C Part 1)
SSP 50287	Hardware/Software Acceptance Process
SSP 50352	NASA/AEB Bilateral Data Exchange Agreements, list and Schedules (BDEALS)
SSP 50407	NASA/ESA Bilateral Data Exchange Agreements, Lists, and Schedules (BDEALS) for Cupola 1
SSP 50421	Program Planning and Control Certification of Flight Readiness Implementation Plan
SSP 50489	ISS Mission Integration Template
SSP 50504	ISS Configuration Document
SSP 50564	ISS Interior Volume Configuration Document
SSP 50611	NASA/ESA Bilateral Data Exchange Agreements, Lists, and Schedules (BDEALS) for ATV
SSP 50614	NASA/JAXA Bilateral Data Exchange Agreements, Lists, and Schedules (BDEALS) for HTV
SSP 50615	NASA/NASDA BHSEALS for the H II Transfer Vehicle (HTV)
SSP 50622-02	Mission Integration Data Sets Blank Book (MIDSBB)
SSP 50659	ISS Program Work Breakdown Structure (WBS)
SSP 50839	ISS Program Operations Description (IPOD) Document
SSP 540XX	Increment Definition and Requirements Document for Increment XX
SSP 54100	IDRD Flight Program
SSP 543XX	Post Increment Evaluation Report for Increment XX
TDH Chapters 505, 506, 507	Texas Department of Health, Health and Safety Code

PROGRAM INTEGRATION AND CONTROL

Table J8-2: Reference Documents List

Document Number	Title
JPD 315	Limited Life Item (LLI) Tracking and Control
JSC 26557	On-Orbit Assembly Modeling and Mass Properties Data Book (Blue Book) Volumes 1 and 2
No Number	NASA Reimbursable Space Act Agreement
No Number	BASEPLATE
No Number	VIPER Interface Document (VID) Main Volume
No Number	VIPER Interface Document Volume 1 – Altitude and Propellant
No Number	VIPER Interface Document Volume 2 – Consumables
No Number	VIPER Interface Document Volume 3 – Energy Balance
NPR 2810.1	Security of Information Technology
NPR 9501.2	NASA Contractor Financial Management Reporting
NSTS 08171 File 10	Operational Maintenance Requirements and Specification (OMRS) File 10
NSTS 08171 File 2 Volume 2	Operational Maintenance Requirements and Specification (OMRS) File 2 Volume 2
SO-999-M-JSC-0086	IT Security Plan (SPOA0010)
SSP 30234	Failure Modes and Effects Analysis and Critical Items List (FMEA/CIL) Requirements for Space Station
SSP 30256:001	EVA Standard ICD
SSP 41000	System Specification For The International Space Station
SSP 41002	ISPR to NASA/ESA/JAXA Modules ICD
SSP 41004 Part 1	CBM to Pressurized Elements ICD, Part 1
SSP 41004 Part 2	CBM to Pressurized Elements ICD, Part 2
SSP 41015 Part 1	Common hatch and Mechanisms to Pressurized Elements ICD, Part 1
SSP 41015 Part 2	Common hatch and Mechanisms to Pressurized Elements ICD, Part 2
SSP 41017 Part 1	Rack to Mini Pressurized Logistics Module ICD, Part 1
SSP 41017 Part 2	Rack to Mini Pressurized Logistics Module ICD, Part 2
SSP 41140 Part 1	Node 1 to Node 3 ICD, Part 1
SSP 41140 Part 2	Node 1 to Node 3 ICD, Part 2
SSP 41142 Part 1	Node Elements to Cupola Element ICD, Part 1
SSP 41142 Part 2	Node Elements to Cupola Element ICD, Part 2
SSP 41143 Part 1	Node Element 2 to U.S. Laboratory Element ICD Part 1
SSP 41143 Part 1 Appendix D	Node Element 2 to U.S. Laboratory Element ICD Part 1, Appendix D
SSP 41143 Part 2	Node Element 2 to U.S. Laboratory Element ICD Part 2

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Document Number	Title
SSP 41143 Part 2 Appendix C	Node Element 2 to U.S. Laboratory Element ICD Part 2, Appendix C
SSP 41147 Part 1	Node 2 to CAM ICD, Part 1
SSP 41147 Part 2	Node 2 to CAM ICD, Part 2
SSP 41148 Part 1	Active CBM to Passive CBM ICD, Part 1
SSP 41148 Part 2	Active CBM to Passive CBM ICD, Part 2
SSP 41150	IRD SSMB to Columbus APM
SSP 41151	IRD SSMB to JEM
SSP 41151 Appendix D	IRD SSMB to JEM Appendix D
SSP 41152	IRD ISPR ICD
SSP 41155 Part 1	Refrigerator/Freezer Rack to Mini Pressurized Logistics Module ICD, Part 1
SSP 41155 Part 2	Refrigerator/Freezer Rack to Mini Pressurized Logistics Module ICD, Part 2
SSP 41160	ESA Segment Specification For Columbus
SSP 41162	Segment Specification For The United States On-Orbit Segment
SSP 41163	Russian Segment Specification
SSP 41165	Segment Specification For The Japanese Experiment Module
SSP 41167	Mobile Servicing System Segment Specification
SSP 41168:2:2	ISS System Specification Traceability Report
SSP 41168:3:1	Columbus Segment Spec Traceability Report
SSP 41168:3:10	CAM Segment Spec Traceability Report
SSP 41168:3:11	ATV Segment Spec Traceability Report
SSP 41168:3:12	Node 3 Segment Spec Traceability Report
SSP 41168:3:13	Cupola Segment Spec Traceability Report
SSP 41168:3:4	Russian Segment Spec Traceability Report
SSP 41168:3:6	JEM Segment Spec Traceability Report
SSP 41168:3:7	MSS Segment Spec Traceability Report
SSP 41168:3:9	HTV Segment Spec Traceability Report
SSP 41171	Preparation Of Program-Unique Specification
SSP 42000	SSMB to JEM ICD
SSP 42001	SSMB to Columbus APM ICD
SSP 42003 Part 1	SSMB to MSS ICD, Part 1
SSP 42003 Part 2	SSMB to MSS ICD, Part 2
SSP 42004 Part 1	Mobile Servicing System (MSS) To User (Generic) Interface Control Document Part 1
SSP 42004 Part 2	Mobile Servicing System (MSS) To User (Generic) Interface Control Document Part 2
SSP 42007 Part 1	USOS Segment to Italian MPLM ICD, Part 1
SSP 42007 Part 2	USOS Segment to Italian MPLM ICD, Part 2

PROGRAM INTEGRATION AND CONTROL

Document Number	Title
SSP 42097 Part 1 Appendix E	PMA to Node 3 ICD, Part 1, Appendix E
SSP 42097 Part 1	PMA 2 and 3 to U.S. Pressurized Elements (Node 2 to PMA 2) ICD, Part 1
SSP 42097 Part 2, Appendix E	PMA to Node 3 ICD, Part 2, Appendix E
SSP 42097 Part 2	PMA 2 and 3 to U.S. Pressurized Elements (Node 2 to PMA 2) ICD, Part 1
SSP 42121 Part 1	USOS PMA-1 to FGB Part 1
SSP 42121 Part 2	USOS PMA-1 to FGB Part 2
SSP 42124 Part 1	ITS S0 to Node 2 ICD Part 1
SSP 42124 Part 2	ITS S0 to Node 2 ICD Part 2
SSP 42137 Part 1	ITS S0 to Node 3 ICD Part 1
SSP 42137 Part 2	ITS S0 to Node 3 ICD Part 2
SSP 50033	NASA/CSA Bilateral Integration and Verification Plan (BIVP)
SSP 50034	NASA/ESA Bilateral Integration and Verification Plan (BIVP)
SSP 50035	NASA/NASDA Bilateral Integration and Verification Plan (BIVP)
SSP 50038	Computer-Based Control System Safety Requirements
SSP 50062	NASA/CSA Bilateral S&MA Requirements
SSP 50094	NASA/RSA Joint Specs/Standards for the Russian Segment
SSP 50101	NASA/RSA Bilateral Integration and Verification Plan (BIVP)
SSP 50102	NASA-ASI Bilateral Integration and Verification Plan (BIVP)
SSP 50104	Portable Breathing Apparatus Standard ICD
SSP 50123-ASI	Configuration Management Handbook, ASI Annex
SSP 50123-CSA	Configuration Management Handbook, CSA Annex
SSP 50123-ESA	Configuration Management Handbook, ESA Annex
SSP 50123-INPE	Configuration Management Handbook, Brazilian Space Agency Handbook
SSP 50123-JAXA	Configuration Management Handbook, JAXA Annex
SSP 50123-Roscosmos	Configuration Management Handbook, Federal Space Agency Annex
SSP 50129	IRD ISS to ATV
SSP 50145	NASA/NASDA Bilateral S&MA Requirements
SSP 50146	NASA/RSA Bilateral S&MA Process Requirements for ISS
SSP 50177 Part 1	Government Furnished Data (GFD) Description Document Part 1 – US Sources
SSP 50182	NASA/ASI Bilateral Safety and Product Assurance Requirements
SSP 50190	ISS Program Contingency Action Plan
SSP 50191	NASA/ESA Bilateral S&PA Requirements

PROGRAM INTEGRATION AND CONTROL

Document Number	Title
SSP 50200-01-ANX E	Station Program Implementation Plan (SPIP), Volume 1, Station Program Management Plan; Annex E:
SSP 50200-01-ANX M	Station Program Implementation Plan (SPIP), Volume 1, Station Program Management Plan; Annex M
SSP 50200-03	Station Program Implementation Plan (SPIP) Volume 3, Cargo Analytical Integration
SSP 50200-04	Station Program Implementation Plan (SPIP) Volume 4, Payload Engineering Integration
SSP 50200-05	SPIP Volume 5, Logistics and Maintenance, Part 1: Maintenance
SSP 50200-06	Station Program Implementation Plan (SPIP) Volume 6, Cargo Physical Processing
SSP 50200-07	Station Program Implementation Plan (SPIP) Volume 7, Training
SSP 50200-08	Station Program Implementation Plan (SPIP) Volume 8, Increment Execution Preparation
SSP 50200-09	Station Program Implementation Plan (SPIP) Volume 9, Real Time Operations
SSP 50200-10	Station Program Implementation Plan (SPIP) Volume 10, Sustaining Engineering
SSP 50223	International Space Station Export Control Program
SSP 50227 Part 1	Russian Segment (SSP, SM and FGB) to PDGF/SSRMS ICD, Part 1
SSP 50227 Part 2	Russian Segment (SSP, SM and FGB) to PDGF/SSRMS ICD, Part 2
SSP 50231	Safety and Mission Assurance/Program Risk Certification of Flight Readiness Implementation Plan
SSP 50235	Interface Definition Document (IDD) For ISS Visiting Vehicles
SSP 50251 Part 1	ARIS to Pressurized Element ICD, Part 1
SSP 50251 Part 2	ARIS to Pressurized Element ICD, Part 2
SSP 50261-02	Generic Ground rules, Requirements, and Constraints Part 2: Execution Planning (GGR&C Part 2)
SSP 50272	Interface Requirements Document International Space Station To H-II Transfer Vehicle
SSP 50273	HTV Segment Specification
SSP 50281	Node 2 NASA/ASI Bilateral Integration and Verification Plan (BIVP)
SSP 50309 Part 1	Node 3 to Hab ICD, Part 1
SSP 50309 Part 2	Node 3 to Hab ICD, Part 2
SSP 50310	Atmosphere Revitalization Subsystem (ARS) Rack to Node 3 ICD
SSP 50312	CAM Segment Specification
SSP 50318	Prime Item Development Specification for Node 3
SSP 50333	Cupola Segment Specification
SSP 50334	ESA/RSA Bilateral Integration and Verification Plan (BIVP) For ATV

PROGRAM INTEGRATION AND CONTROL

Document Number	Title
SSP 50346	NASA/ASI Nodes Bilateral S&PA Requirements
SSP 50349	NASA/AEB Bilateral Integration and Verification Plan
SSP 50357	Node 2 to Crew Quarters ICD
SSP 50406	NASA/ESA Bilateral Integration & Verification Plan (BIVP) For Cupola
SSP 50420	NASA/NASDA Bilateral Integration & Verification Plan (BIVP) For HTV
SSP 50428	NASA/AEB Bilateral Safety and Mission Assurance Requirements
SSP 50437	Safety and Mission Assurance/Program Risk Mission Evaluation Room Console Operations Handbook for ISS Program
SSP 50438 Part 1	ISS to HTV ICD, Part 1
SSP 50438 Part 2	ISS to HTV ICD, Part 2
SSP 50439	ESA Segment Specification For The Automated Transfer Vehicle (ATV)
SSP 50448	Station Development Test Objectives (SDTO)
SSP 50469	OCS to RWS ICD
SSP 50470	Crew Health Care System (CHeCS) Specification
SSP 50562	ISS Program Off-Nominal Situation Plan (IPOP)
SSP 50622-03	Operation Data Set Blank Book (ODSBB)
SSP 50699-03	USOS Certification Baseline, Volume 3: Flight Attitudes
SSP 50670	ARED to ISS Interface Control Document
SSP 50706	Change Engineer Handbook
SSP 50718	NASA/JAXA Centrifuge Element Bilateral Safety and Product Assurance Requirements
SSP 50722	Battery ORU to HTV-Exposed Pallet ICD
SSP 50724	NASA/ESA Node 3 Bilateral Safety and Product Assurance Requirements
SSP 50744	Data Impoundment Processing Procedures
SSP 50764	Modification Kit Process
SSP 50781	Project Technical Requirements Specification for the ISS Crew Quarters
SSP 50786 Part 1	USOS to MLM ICD, Part 1
SSP 50786 Part 2	USOS to MLM ICD, Part 2
SSP 50794	Express Logistics Carrier (ELC) Project Implementation Plan
SSP 50808	ISS to COTS IRD
SSP 50809	ISS to COTS ICD for Space X
SSP 50821	Requirements Specification for the ISS Second Treadmill
SSP 50826	ISS Six Crew Strategic Planning Document
SSP 50831	CUCU IRD
SSP 50832	COTS Cargo IRD

PROGRAM INTEGRATION AND CONTROL

Document Number	Title
SSP 50834	ISS Vehicle Office Management and Hardware Development Plan
SSP 50839	ISS Program Operations Description
SSP 50850	NASA/SpaceX Joint Integration, Verification and Test Plan (JIVTP)
SSP 50851	International Space Station/Orion Project Joint Integration, Verification and Test Plan
SSP 50868	NASA/Orbital Joint Integration, Verification and Test Plan
SSP 52055	Express Logistics Carrier Development Specification
SSP TBD	ISS to OBSS ICD
SSP TBD	ISS to External Carrier (TBD) ICD
SSP XXXXX	New Partner ICDs (Orbital)
SSP XXXXX	New Partner ICDs
SSP XXXXX	CEV ICD

PROGRAM INTEGRATION AND CONTROL

PART IV - REPRESENTATIONS AND INSTRUCTIONS**SECTION K - REPRESENTATIONS, CERTIFICATIONS
AND OTHER STATEMENTS OF OFFERORS****K.1 LISTING OF CLAUSES INCORPORATED BY REFERENCE**

NOTICE: The following contract clauses pertinent to this section are hereby incorporated by reference:

I. FEDERAL ACQUISITION REGULATION (48 CFR CHAPTER 1)

CLAUSE NUMBER	DATE	TITLE
52.203-11	SEPT 2007	CERTIFICATION AND DISCLOSURE REGARDING PAYMENTS TO INFLUENCE CERTAIN FEDERAL TRANSACTIONS

II. NASA FAR SUPPLEMENT (48 CFR CHAPTER 18) CLAUSES

CLAUSE NUMBER	DATE	TITLE
None included by reference		

K.2 FAR 52.204-8 ANNUAL REPRESENTATIONS AND CERTIFICATIONS (JAN 2006)

(a)(1) The North American Industry Classification System (NAICS) code for this acquisition is 541712 – Research and Development in the Physical, Engineering, and Life Sciences.

(2) The small business size standard is 1,000 employees.

(3) The small business size standard for a concern which submits an offer in its own name, other than on a construction or service contract, but which proposes to furnish a product which it did not itself manufacture, is 500 employees.

(b)(1) If the clause at 52.204-7, Central Contractor Registration, is included in this solicitation, paragraph (c) of this provision applies.

PROGRAM INTEGRATION AND CONTROL

- (2) If the clause at 52.204-7 is not included in this solicitation, and the offeror is currently registered in CCR, and has completed the ORCA electronically, the offeror may choose to use paragraph (c) of this provision instead of completing the corresponding individual representations and certifications in the solicitation. The offeror shall indicate which option applies by checking one of the following boxes:

☐ (i) Paragraph (c) applies.

☐ (ii) Paragraph (c) does not apply and the offeror has completed the individual representations and certifications in the solicitation.

- (c) The offeror has completed the annual representations and certifications electronically via the Online Representations and Certifications Application (ORCA) website at <http://orca.bpn.gov>. After reviewing the ORCA database information, the offeror verifies by submission of the offer that the representations and certifications currently posted electronically have been entered or updated within the last 12 months, are current, accurate, complete, and applicable to this solicitation (including the business size standard applicable to the NAICS code referenced for this solicitation), as of the date of this offer and are incorporated in this offer by reference (see FAR 4.1201); except for the changes identified below [*offeror to insert changes, identifying change by clause number, title, date*]. These amended representation(s) and/or certification(s) are also incorporated in this offer and are current, accurate, and complete as of the date of this offer.

FAR CLAUSE #	TITLE	DATE	CHANGE
_____	_____	_____	_____

Any changes provided by the offeror are applicable to this solicitation only, and do not result in an update to the representations and certifications posted on ORCA.

(End of provision)

[END OF SECTION]

Effective Date: October 1, 2009

Contract # NNJ09GA18B



Booz | Allen | Hamilton



FINAL
PROGRAM INTEGRATION AND CONTROL FOLLOW-ON
TECHNICAL AND MANAGEMENT APPROACH:
SAFETY AND HEALTH PLAN

DRD PIC-SA-02

Revision 0

Type I

Prepared for

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
LYNDON B. JOHNSON SPACE CENTER

Prepared by:

ARES Corporation
Booz Allen Hamilton
Barrios Technology

Reviewed by:

Kris Croskery
ARES Designated Safety Official

Approved by:

Melba M. York
ARES ISS PI&C Program Manager

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TYPE 1 PRELIMINARY – PENDING NASA APPROVAL



EMERGENCY PHONE NUMBERS AND CONTACTS

Emergency Contact	Phone Number & Extension
Emergency (offsite)	911
Emergency Dispatch and Major Injuries (onsite)	281-483-3333 (ext. 3-3333)
Minor Injuries (JSC Clinic)	281-483-4111
Emergency Information Line	281-483-3351
Safety Hotline	281-483-7500
Center Director's Safety Hotline	281-483-1234
Occupational Health Office	281-483-7896
Poison Control	800-222-1222
Safety and Test Operations Office (Occupational Safety)	281-483-4345
NASA Headquarters through Director, Safety and Assurance Requirements Division	202-358-0006
Chief Health and Medical Officer	202-358-2390
Occupational Safety and Health Administration (OSHA)	800-321-OSHA (6742)
JSC Safety and Test Operations Division	281-483-1935
Air Handlers (M&O Contractor)	281-483-3061
Asbestos (Occupational Health Department)	281-483-6726
Blood Clean-up (Emergency Operations Center)	281-483-3333
Bomb Threat (Emergency Operations Center)	281-483-3333
Breaker Boxes (Work Control)	281-483-2038
Ceiling Tiles—Replacement (Work Control)	281-483-2038
Close Call Reporting (Safety Contractor)	Safety Website
Confined Space Entry (Occupational Health Department)	281-483-6726
Emergency Lighting (Work Control)	281-483-2038
Ergonomics (Occupational Health Department)	281-483-6475
Exits—Repair or Replace (Work Control)	281-483-2038
Explosives/Pyrotechnics (Safety Contractor)	281-483-6362
Eye Wash—Maintenance (Work Control)	281-483-2038
Fire or Life Safety (Safety Contractor)	281-483-6424
Floor Tile—Replace or Repair (Work Control)	281-483-2038
Hazard Abatement Tracking System—HATS (Safety Contractor)	281-483-6362
Hazard Communication (Occupational Health Department)	281-483-6475
Hazardous Chemical Storage, Waste Sampling, or Spills (Occupational Health Department and/or Work Control)	281-483-6726 (Occ. Health) 281-483-2038 (Work Control)
Hazardous Materials Transportation (Transportation)	281-483-6509
Hazardous Waste Disposal (Work Control)	281-483-2038
Hoods, Laboratory—Certification (Occupational Health Department)	281-483-6726
Indoor Air Pollution (Occupational Health Department)	281-483-6726
Lighting—Studies (Occupational Health Department)	281-483-6726
Material Safety Data Sheets (Occupational Health Department)	281-483-7512
Noise—Complaints (Occupational Health Department)	281-483-6726
Odors—Complaints (Occupational Health Department)	281-483-6726
Pressure Systems (Pressure Systems)	281-483-7310
Radiation—Concerns (Radiological Health)	281-483-7082
Respirators—Fit Testing (Occupational Health Department)	281-483-6471
Safety Related Facilities Modification—930s (Safety Branch)	281-483-6345
St. John Hospital	281-333-5503
Traffic Safety (Security)	281-483-4068
Tripping Hazards—Floors (Work Control)	281-483-2038



PROGRAM INTEGRATION AND CONTROL SAFETY AND HEALTH PLAN

**DRD PIC-SA-02
Revision 0**

Prepared for

**NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
LYNDON B. JOHNSON SPACE CENTER**

Prepared by:
Paula Gothreaux,
ARES Corporation

Reviewed by:

Kristina M. Croskery
ARES Designated Safety Official

Date

Approved by:

Melba York
ARES Program Manager

Date



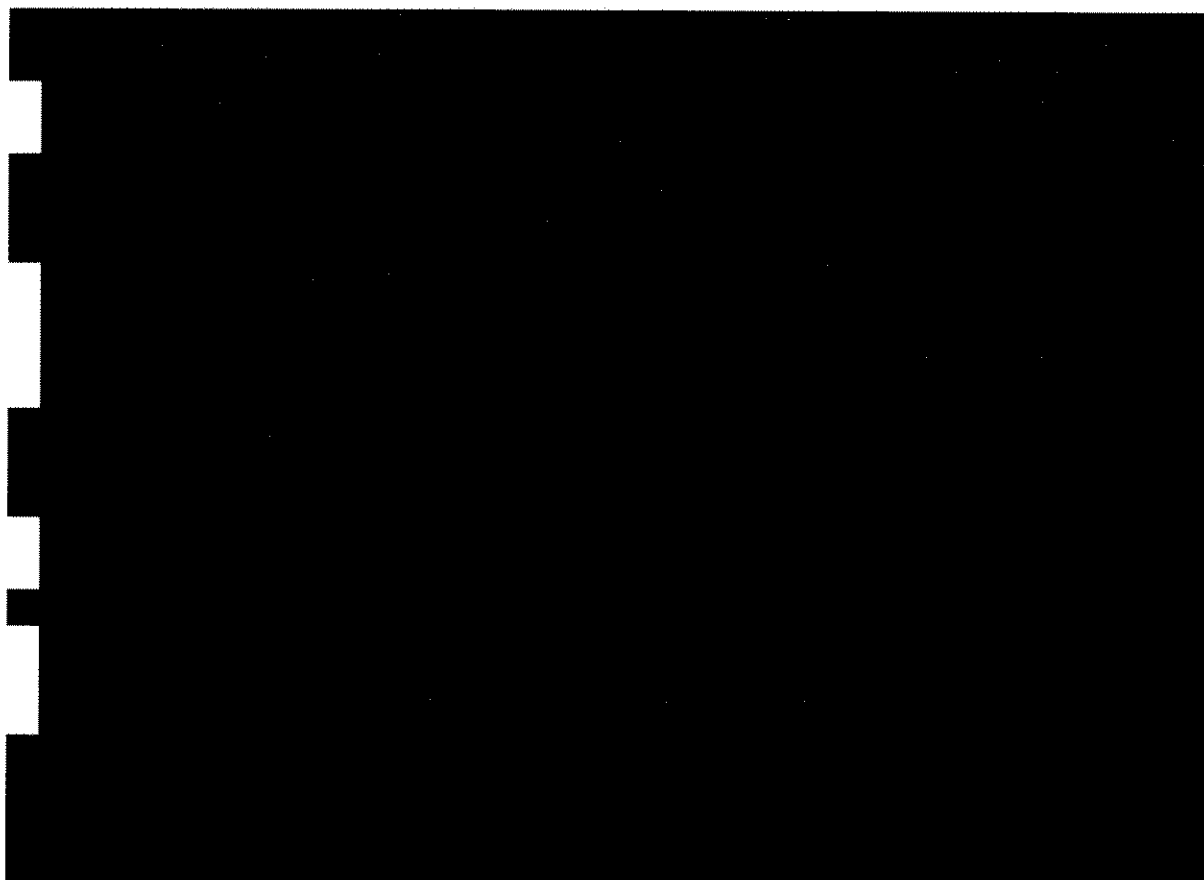
REVISION HISTORY

REV.	DESCRIPTION	PUB. DATE
0	Initial Submittal for ISS PI&C Follow-on Contract	08/10/2009



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[REDACTED]

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[REDACTED]

4.0 SAFETY AND HEALTH TRAINING..... 30

[REDACTED]

[REDACTED]



[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]



ACRONYMS

AA	Assistant Administrator Associate Administrator
ACM	Asbestos-Containing Material
AED	Automated External Defibrillator
CD	Center Director
CFR	Code of Federal Regulations
CHMO	Chief Health and Medical Officer
CO	Contracting Officer
COTR	Contracting Officer's Technical Representative
CPR	Core Process Requirement Cardio-Pulmonary Resuscitation
CRM	Continuous Risk Management
CSE	Confined Space Entry
CSR	Contract Safety Representative
DACR	Days Away Case Rate
DART	Days Away plus Restricted Duty plus Job Transfer
DOT	Department of Transportation
DRD	Data Requirement Description
DSO	Designated Safety Officer
EAR	Export Administration Regulations
EMS	Emergency Medical Services
EPA	Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-Know Act
EPP	Emergency Preparedness Plan
FAR	Federal Acquisition Regulations
FMEA	Failure Modes and Effects Analysis
GFE	Government-Furnished Equipment
GFP	Government-Furnished Property
HATS	Hazard Abatement Tracking System
HazCom	Hazardous Communications
HazMat	Hazardous Materials
HAZWOPER	Hazardous Waste Operations and Emergency Response
HOP	Hazardous Operations Permit
HQ	Headquarters
HWP	Hot Work Permit
IRIS	Incident Reporting Information System
IRMA	Integrated Risk Management Application
ISS	International Space Station
JHA	Job Hazard Analysis
JHB	JSC Handbook
JMI	JSC Management Instruction
JPD	JSC Policy Directive



JPR	JSC Procedural Requirement
JSC	Lyndon B. Johnson Space Center
LL	Lessons Learned
MA&RM	Mission Assurance and Risk Management
MDAA	Mission Directorate Associate Administrator
MIB	Mishap Investigation Board
MS	Microsoft
MSDS	Material Safety Data Sheet
NASA	National Aeronautics and Space Administration
NFS	NASA FAR Supplement
NPD	NASA Policy Directive
NPR	NASA Procedural Requirements
NSRS	NASA Safety Reporting System
NWS	National Weather Service
OIA	Office of Infrastructure and Administration
OPA	Office of Public Affairs
OSHA	Occupational Safety & Health Administration
OSMA	Office of Safety and Mission Assurance
OSPP	Office of Security and Program Protection
PAO	Public Affairs Office
PEP	Performance Evaluation Profile
PI&C	Program Integration and Control
PM	Program Manager
POC	Point of Contact
PPE	Personal Protective Equipment
RAC	Risk Assessment Code
RCRA	Resource Conservation & Recovery Act
RM	Risk Management
S&H	Safety and Health
SATERN	System for Administration, Training, and Educational Resources for NASA
TDH	Texas Department of Health
TRIR	Total Recordable Injury Rate
UL	Underwriters Laboratory
VPP	Voluntary Protection Program



INTRODUCTION

This Safety and Health (S&H) Plan ("Plan") describes how the ARES Team intends to protect the life, occupational health, and safety of National Aeronautics and Space Administration (NASA) and contractor employees during execution of the International Space Station (ISS) Program

Integration and Control (PI&C) Follow-on contract. The Plan also discusses protection of property and equipment. The ARES Team is composed of ARES Corporation, Booz Allen Hamilton, and Barrios Technology. This Plan establishes the policies, procedures, and guidelines that define the ARES Team S&H Program. It is applicable to S&H activity at all NASA Centers and sites where ISS PI&C Follow-on contract operations are carried out as well as ARES Team offsite facilities. This S&H Plan applies to ARES personnel, our subcontractors, and any other vendors or subcontractors while on our premises.

Furthermore, we understand the importance of NASA safety policy directives and priorities to protect safety and occupational health of the public, astronauts, and pilots, NASA workforce (including contractor employees working on NASA contracts), and high-value equipment and property from potential harm. Our Plan abides by policies and procedures promulgated by NASA Lyndon B. Johnson Space Center (JSC) Procedural Requirement (JPR) 1700.1, "JSC Safety and Health Handbook," as well as NASA Procedural Requirements (NPR) 8715.3, Appendix E, "Sample Safety and Health Plan for Service or Operations Contracts," and NFS 1852.223-73, "NASA FAR Supplement – Safety & Health Plan." We accept our responsibility to provide safe programs and technologies as well as operations and facilities to ensure safe working conditions throughout contract performance.

Contractor and NASA specific resources and assumptions are identified in the applicable sections of this S&H Plan.

1.0 MANAGEMENT LEADERSHIP AND EMPLOYEE PARTICIPATION



[REDACTED]



[REDACTED]

Beyond our desire to continuously improve as well as identify areas for improvement and because of our exceptional safety record on our JSC contracts, we currently do not anticipate changes to our methods regarding Days Away Case Rate (DACR), Total Recordable Injury Rate (TRIR), and total Days Away plus Restricted Duty plus Job Transfer (DART). To date, there is no data to substantiate negative trends in these rates, and should this occur, we will identify specific improvement methods at that time.

[illegible]

[illegible][illegible]



[REDACTED]

[REDACTED]

[REDACTED]		
[REDACTED]	[REDACTED]	[REDACTED]

[REDACTED]

[illegible]

[REDACTED]

[illegible][illegible]



[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

As necessary, we maintain Material Safety Data Sheets (MSDSs) for Hazardous Materials (HazMat) used by our Team. The MSDS maintenance complies with OSHA regulation 29 CFR 1910.1200, "Hazard Communication" and Federal Standard 313 (FED-STD-313), "Material Safety Data, Transportation Data and Disposal Data for Hazardous Materials Furnished to Government Activities." In addition, ARES will include MSDS for HazMat transported onto Government property as per the previously mentioned requirements, as well as the Environmental Protection Agency (EPA) "Emergency Planning and Community Right-to-Know Act (EPCRA, ref. 40 CFR 302, 311, 312) and the Texas Department of Health (TDH, ref. Chapters 505–507 of the Health and Safety Code), as revised.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]



[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

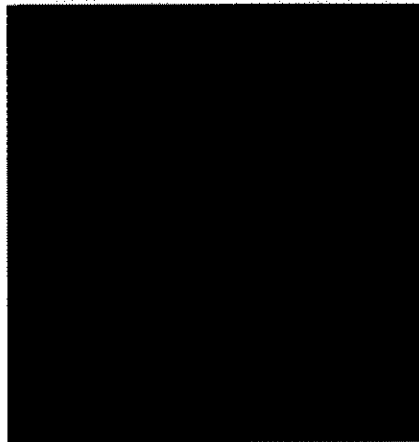
[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[illegible]



[Redacted text block]

[Redacted text block]

[Redacted text block]

[Redacted text block]

ARES supplies necessary PPE to offsite personnel. Personnel requiring PPE while working onsite at JSC will contact the JSC Supply Branch or Procurement to obtain necessary equipment. Chapter 5 of JPR 1700.1 includes procedures for obtaining and caring for PPE. Personnel will adhere to the equipment manufacturers' instructions for proper inspection, maintenance, and storage of PPE. The DSO is responsible for ensuring proper inspection and maintenance records are maintained for both onsite and offsite personnel. Inspection and maintenance records for PPE obtained through the JSC Supply Branch or Procurement will be maintained in accordance with JSC procedures. Records for the inspection and maintenance of ARES-supplied PPE will be maintained at the appropriate ARES offsite facility.

Use or disclosure of data contained on this sheet is subject to the restriction on the title page of this proposal.



In addition, we encourage ARES Team members to use the NSRS to report hazards if other means are not readily accessible. The NSRS is available to contractors and NASA employees to identify hazards presented by a NASA operation that can affect the public, NASA workforce, or NASA assets. It is a reprisal-free, anonymous reporting system for use when employees are uncomfortable reporting hazards through regular channels.

[REDACTED]

Mishap reporting and investigation performance is in accordance with NPR 8621.1, "NASA Procedural Requirements for Mishap Reporting, Investigating, and Recordkeeping," and JPR 1700.1, "JSC Safety and Health Handbook."

As described in JPR 1700.1, a *mishap* is an event that causes unplanned or unexpected injury, property damage, or impact to the environment (see Table 2.7-1 for descriptions of specific types of mishaps). Depending on the situation, the supervisor of the injured employee or the manager in charge of the area where damage or a hazardous material release or spill occurred reports the mishap. However, anyone who witnesses a mishap may report it. [REDACTED]

[REDACTED]

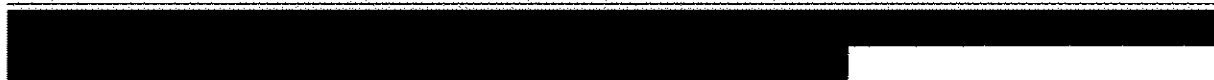
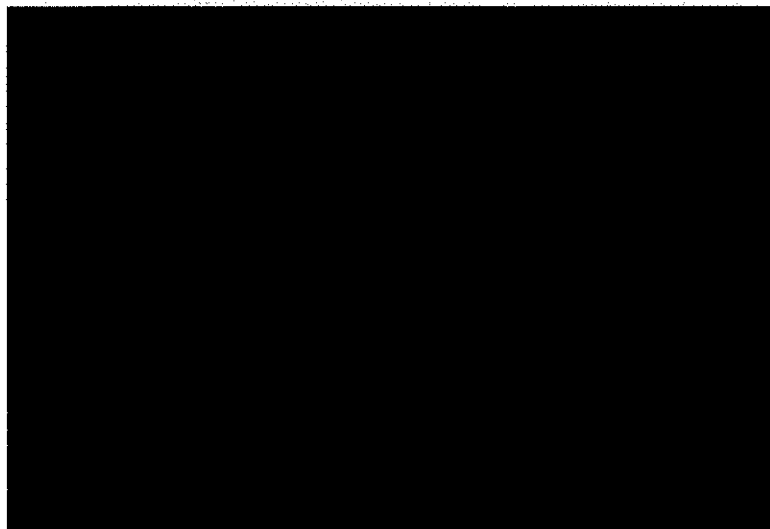


Table 2.7-1. Mishap Types and Definitions.

Type	Definition
Type A Mishap	<ul style="list-style-type: none"> • Damage greater than or equal to \$1,000,000. • Death.
Type B Mishap	<ul style="list-style-type: none"> • Damage greater than or equal to \$250,000 and less than \$1,000,000. • JSC must report injuries and illnesses that result in death or hospitalization of 3 or more persons to OSHA within 8 hours. • Permanent disability. • Hospitalization of three or more persons.
Type C Mishap	<ul style="list-style-type: none"> • Damage greater than or equal to \$25,000 and less than \$250,000. • Lost workday case (NASA definition doesn't include restricted duty).
Type D Mishap	<ul style="list-style-type: none"> • Damage greater than or equal to \$1,000 and less than \$25,000. • Any nonfatal OSHA recordable occupational injury and/or illness that does not meet the definition of a Type C mishap.
Mission Failure	<ul style="list-style-type: none"> • Prevents accomplishing primary mission objectives. • Prevents achievement of primary mission objectives.
Medical Treatment	<ul style="list-style-type: none"> • Includes treatment of injuries administered by physicians, registered professional personnel, or lay persons (i.e., non-medical personnel). Medical treatment does not include first aid treatment defined below.
OSHA "Recordable"	<ul style="list-style-type: none"> • Lost workday cases (OSHA definition) + medical treatment cases.
First Aid Case	<ul style="list-style-type: none"> • Injury or illness that requires only first aid treatment. • <i>First aid</i> – Any one-time treatment and subsequent observation of minor scratches, cuts, burns, splinters, and so forth, which do not ordinarily require medical care. Such treatment

[illegible]



[REDACTED]

3.0 HAZARD PREVENTION AND CONTROL

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]



[REDACTED]

A *hazardous operation* is a job that involves HazMat, conditions, or equipment that could result in injury or property damage if special precautions are not taken. ARES personnel are not expected to perform hazardous operations in the execution of routine, office-oriented support tasks – the nature of which are not included in Categories I–IV of hazardous operations as defined in JPR 1700.1.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[illegible]

Some buildings at JSC and other ARES Team facilities may have areas that contain asbestos. Buildings constructed prior to 1978 may have asbestos-containing materials (ACMs) such as pipe insulation, roofing materials, structural insulation, and floor tiles. [REDACTED]



[REDACTED]

Facility means any building, work area within a building, or work area outside of a building utilized to perform work in the execution of a contract. JSC contract work areas under ARES' control may require facility baseline documentation as identified in JPR 1700.1. The PM will hold ultimate responsibility. When and wherever applicable, ARES will support and implement any facilities baseline documentation tasks provided in any plan approved by NASA or as required by Government direction.

[REDACTED]



[REDACTED]



[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

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—original on file—

Melba York
ARES Program Manager

Date



Management Leadership & Employee Participation

Element I	<i>Visible management leadership provides the motivating force for an effective S&H Program.</i>
Level 1	Management demonstrates no policy, has not assigned or communicated responsibility, nor provided adequate authority or resources with regard to S&H at this worksite.
Level 2	Management sets and communicates S&H policy and goals, but remains detached from all other S&H efforts.
Level 3	Management follows all S&H rules and gives visible support to the S&H efforts of others. Managers and supervisors are informed/trained in accordance with site policy. Managers and supervisors are evaluated in performance reviews of the attention they have given to S&H issues.
Level 4	All requirements of 3 above plus...Management has communicated a clearly stated safety policy as reflected in the agency safety program Core Process Requirements (CPR). Each manager has made a personal commitment to provide a hazard-free workplace. Incentive programs that encourage reporting of mishaps, symptoms, injuries, or hazards, are generally promoted. Management has established a S&H committee that includes representatives from line management, contractors, union, and employee representatives.
Level 5	All requirements of 3 and 4 above plus...Management has assigned and communicated clearly defined responsibility for S&H in position descriptions and performance plans. Site S&H issues are regularly included on the agenda of the directorate committee meetings such as civil service and contractor mishaps. Open and completed discrepancies are reviewed. Safety committees meet on a regular basis, and minutes of the meetings are kept and distributed to all attendees. Similar committees have been established in all of the divisions and branch levels. The results of these meetings are reported to the Director, and the Director performs an annual evaluation of the Directorate's effectiveness in implementing their S&H Plan including accomplishment of its goals and objectives. Budgets are adequate to achieve goals and objectives.
Element II	<i>Employee participation provides the means through which workers identify hazards, recommend and monitor hazard abatement, and otherwise participate in their own S&H Program.</i>
Level 1	Workers are not involved with management in carrying out safety activities. Programs are present that have the effect of discouraging reporting of incidents, injuries, potential hazards, or symptoms. There are rarely any S&H inspections conducted and no apparent involvement of employees in conducting investigations of close call reports or Type C mishaps.
Level 2	Workers, or their representatives, can participate freely in S&H activities at the worksite without fear of reprisal. Procedures are in place for communication between employer and workers on S&H matters. Workers are paid while performing safety activities, but aren't encouraged to participate frequently because it removes them from their primary work activities. Contractor or employee representatives have limited involvement in the S&H Program.
Level 3	Workers, or their representatives, are involved in the S&H Program, involved in inspection of work areas, and are permitted to observe, monitor, and receive results. Worker rights under the Occupational Safety and Health Act (OSHA) to refuse or stop work that they reasonably believe involves imminent danger are understood by workers and honored by management. Employee procedures are documented and in place for dealing with emergencies in the workplace. Emergency equipment (fire pull boxes, fire extinguishers, first aid kits, etc.) is available.
Level 4	All requirements of 3 above plus...Workers, or their representatives, participate in workplace analysis, inspections and investigations, and development of control strategies throughout the facility, and have necessary training and education to participate in such activities. Workers and their representatives have access to all pertinent S&H information, including safety reports and audits. Workers are informed of their right to refuse job assignments that pose serious hazard to themselves pending management response. A close call reporting system is used to bring attention to potential safety/health problems.
Level 5	All requirements of 3 and 4 above plus...Workers, or their representatives, participate fully in development of the S&H Program and the conduct of training and education. All employees, including new hires, are notified of the Center's safety goals. Employees are assured of their right to complain to OSHA. Employers encourage and authorize employees to stop unsafe activities that can lead to serious S&H incidents. Two-way safety communications between supervisors and employees are open and encouraged.



Element III	<i>Management provides implementation tools that include: budget, information, personnel, assigned responsibility, adequate expertise and authority, means to hold responsible persons accountable (line accountability), program review procedures, directives, and methods criteria analysis.</i>
Level 1	Tools to implement a S&H Program are inadequate or missing.
Level 2	Some tools to implement a S&H Program are adequate and effectively used, others are ineffective or missing. Management assigns responsibility for implementing a site S&H Program to identified person(s). Management's designated representative has authority to direct abatement of hazards that can be corrected without major capital expenditure.
Level 3	Tools to implement a S&H Program are adequate, but are not all effectively used. Management's assigned representative has expertise in hazard recognition and applicable site requirements and has access to information such as the company's mishap history file. The company's history files are kept for a minimum of 3 years. Management keeps, or has access to, applicable standards at the facility and seeks appropriate guidance information for interpretation of applicable standards. Management representative has authority to order/purchase S&H equipment.
Level 4	All requirements of 3 above plus...Clear lines of authority and responsibility are defined for both managers and employees. Managers and employees are held accountable for S&H in the workplace. Written safety procedures, policies, and interpretations are updated based on reviews of the S&H Program. S&H expenditures, including training costs and personnel, are identified in the facility budget. Hazard abatement is an element in management's performance evaluation.
Level 5	All requirements of 3 and 4 above plus...All tools necessary to implement an effective S&H Program are in place and periodically updated. Management S&H representative has expertise appropriate to facility size and process(es), and has access to professional advice when needed. S&H budgets and funding procedures are reviewed periodically for adequacy. Management enforces the rules of holding responsible persons accountable (line accountability) for S&H. Safety hazards are identified and rectified expeditiously.
Element IV	<i>Contractor Safety: An effective S&H Program protects all personnel on the worksite. Contractor's S&H Program must, as a minimum, contain the same elements as the NASA Program.</i>
Level 1	Contractor demonstrates no policy, has not assigned or communicated responsibility, nor provided adequate authority or resources with regard to S&H at this worksite.
Level 2	Contractor sets and communicates S&H policy and goals, but remains detached from all other S&H efforts.
Level 3	Contractor follows all S&H rules, and gives visible support to the S&H efforts of others. Management and supervisors are informed/trained in accordance with the contractor's program. Managers and supervisors are evaluated in performance reviews on the attention they have given to S&H issues.
Level 4	All requirements of 3 above plus...Contractor has communicated a clearly stated safety policy. Contractor has made a personal commitment to provide a hazard-free workplace through site inspections, incident reviews, and program reviews. Incentive programs that encourage reporting of mishaps, symptoms, injuries, or hazards are generally promoted. When evaluating line management, all performance reviews are closely evaluated on the manager's proactive involvement in S&H issues. Contractor has established a S&H committee that includes representatives from line management as well as union and employee representatives. Contractor has budgeted both manpower and resources to support their S&H Program.
Level 5	All requirements of 3 and 4 above plus...Contractor has assigned and communicated clearly defined responsibility for S&H in position descriptions and performance plans. Site S&H issues are regularly included on the agenda of the contractor's staff meetings. Contractor's upper management routinely evaluates site safety program results in an ongoing effort to identify problem areas and implement improvements.
Worksite Hazard Analysis	
Element V	<i>Survey and Hazard Analysis: An effective S&H Program will seek to identify and analyze all hazards. In large or complex workplaces, components of such analysis are the comprehensive survey and analyses of job hazards and changes in conditions.</i>
Level 1	No system or requirement exists for hazard review of planned/changed/new operations. There is no evidence of a comprehensive survey for safety or health hazards or for routine JHA.



Level 2	Surveys for violations of standards are conducted by knowledgeable person(s), but only in response to complaints or mishaps. Management sometimes documents the reviews by a hazard analysis or job safety analysis. The employer has identified principle safety standards that apply to the worksite. Management rarely involves the employees in the reviews and analyses of the facilities and operations.
Level 3	Process, task, and environmental surveys are conducted by knowledgeable person(s) and updated as needed. Current hazard analyses are written (where appropriate) for all high-hazard jobs and processes; analyses are communicated to and understood by affected employees. Hazard analyses are conducted for jobs, tasks, and workstations where injury or illnesses have been recorded.
Level 4	All requirements of 3 above plus...Methodical surveys (walkthroughs) are conducted periodically and drive appropriate corrective action. Knowledgeable persons review all planned/changed/new facilities, processes, materials, or equipment. Hazard elimination is the goal. When hazard elimination is not possible, appropriate hazard controls are used. A JHA has been conducted for all jobs in the organization.
Level 5	All requirements of 3 and 4 above plus...Management always involves the employees in the reviews and analyses of the facilities and operations. Regular surveys, including documented comprehensive workplace hazard evaluations, are conducted by certified S&H professionals. Corrective action is documented, and hazard inventories are updated.
Element VI	<i>Inspection: An effective S&H Program will include regular site inspections to identify new or previously missed hazards and failures in hazard controls.</i>
Level 1	No routine physical inspection of the workplace and equipment is conducted.
Level 2	Management has established a process that is utilized some of the time, but not on a scheduled basis, to review and inspect facilities for obvious hazards. Supervisors dedicate time to observing work practices and other S&H conditions in work areas where they have responsibility.
Level 3	Management has established a periodic inspection process to review and inspect facilities and workplaces. Competent personnel conduct inspections with appropriate involvement of employees. Items in need of correction are documented. Inspections include compliance with relevant industry standards. Time periods for correction are set.
Level 4	All requirements of 3 above plus...Management, with employee participation, has established a periodic inspection process to review and inspect facilities and workplaces. Trained employees conduct inspections, and all items are corrected promptly and appropriately. Workplace inspections are planned, with key observations or check points defined and results documented. Persons conducting inspections have specific training in hazard identification applicable to the facility. At a minimum, the entire worksite is inspected at least each quarter.
Level 5	All requirements of 3 and 4 above plus...Inspections are performed to include S&H professionals, line management, and worksite personnel, and are always documented and corrective action tracked.
Element VII	<i>Reporting: A reliable hazard reporting system enables employees, without fear of reprisal, to notify management of condition(s) that appear hazardous and to receive timely and appropriate response.</i>
Level 1	No formal hazard reporting system exists, or employees are reluctant to report hazards.
Level 2	Employees are instructed to report hazards to management. Supervisors are instructed and are aware of a procedure for evaluating and responding to such reports. Employees use the system with no risk of reprisals.
Level 3	Management has established a formal system for hazard reporting. Employee reports of hazards are documented, corrective action is scheduled, and records maintained. Open hazards, on the average, are closed within one month. Directors or managers review open hazard reports.
Level 4	All requirements of 3 above plus...Employees are periodically instructed in hazard identification and reporting procedures. Open hazards, on the average, are closed within 5 working days. Management conducts surveys of employee observations of hazards to ensure that the system is working. Results are documented. Hazards and close call reports are expeditiously reviewed and feedback is provided to the report originator.



Level 5	All requirements of 3 and 4 above plus...Management has a written process for motivating employees to identify and report hazards and close calls related to safety rules and processes. Records are kept on actions taken in this process. Management responds in writing to reports of hazards within specified timeframes. The workforce readily identifies and self-corrects hazards; they are supported by management when they do so. Open hazard notices are always posted for employee notification. Management periodically reviews the status of close calls, hazard reports, and mishap report close-outs. Line management analyzes mishap reports, close calls, and hazard reports to identify trends, improvements to be made, or areas that need attention.
Element VIII	<i>Mishap Investigation: An effective safety program will provide for investigation of mishaps and close call incidents, so that their causes and the means for their prevention are identified.</i>
Level 1	No investigation of mishaps, injuries, near misses, or other incidents are conducted.
Level 2	Some investigation of incidents takes place, but root cause may not be identified, and correction may be inconsistent. Supervisors prepare injury reports for lost-time cases.
Level 3	Appropriate documentation is completed for all recordable incidents. Reports are prepared with cause identification and corrective measures prescribed. Corrective measures are used as a means for mishap prevention.
Level 4	All requirements of 3 above plus...Reports and recommendations are available to employees. Quality and completeness of investigations are systematically reviewed by trained safety personnel. Close calls and hazard reports are reviewed and analyzed by S&H Committees. Supervisors and employee representatives investigate first aid and Type C mishaps.
Level 5	All requirements of 3 and 4 above plus...All loss-producing mishaps and close calls are investigated for root causes by teams of individuals that include trained safety personnel and employees. Management has established a process to report all close calls and hazards, and employees are rewarded for reporting them. Type B and Type A potential mishaps are reported to the Director and Safety Office immediately so that a Board of Investigation can be appointed.
Element IX	<i>Data Analysis: An effective program will analyze injury and illness records for indications of sources and locations of hazards, and identify jobs that experience higher numbers of injuries. By analyzing injury and illness trends over time, patterns with common causes can be identified and prevented.</i>
Level 1	Little or no analysis of injury/illness records are kept or conducted.
Level 2	Data is collected and analyzed, but not widely used for prevention. Appropriate documentation is completed for all recordable cases. Records and analyses are organized and are available to safety personnel.
Level 3	Data is collected and analyzed, records are maintained, and rates are calculated so as to identify high-risk areas and jobs. Significant analytical findings are used for prevention.
Level 4	All requirements of 3 above plus...Management has established a process to identify the frequent and most severe problem areas, the high-risk areas and job classification, and any exposures responsible for recordable cases. Data is fully analyzed and effectively communicated to employees. Illness/injury data is audited and certified by a responsible person.
Level 5	All requirements of 3 and 4 above plus...All levels of management and the workforce are aware of the results of data analyses and resulting preventive activity. External audits of injury and illness data accuracy, including review of all available data sources, are conducted. Injury/illness records are collected and used in statistical analysis. Management and supervisory personnel are using the results of this profile on a monthly basis to analyze their safety program. All NASA contractors submit their injury data by contract number so as to ensure all contracts are reporting correctly and the rates are tracked.
Hazard Prevention and Control	
Element X	<i>Hazard Control: Workforce exposure to all current and potential hazards should be prevented or controlled by using engineering controls, work practice and administrative controls, and PPE.</i>
Level 1	Hazard control is seriously lacking or absent from the facility.
Level 2	Hazard controls are generally in place, but effectiveness and completeness vary. Serious hazards may still exist. Employer has achieved general compliance with applicable standards regarding hazards with a significant probability of causing serious physical harm. Hazards that have caused past injuries in the facility have been corrected.



Level 3	Appropriate controls (engineering, work practice and administrative controls, and PPE) are in place for significant hazards. Employer is generally in compliance with voluntary standards, industry practices, and suppliers' safety recommendations. Documented reviews of needs in machine guarding, energy lockout, ergonomics, materials handling, bloodborne pathogens, confined space, HazCom, and other generally applicable standards have been conducted. The overall program tolerates occasional deviations.
Level 4	All requirements of 3 above plus...Hazard controls are fully in place, and are known and supported by the workforce. The employer requires strict and complete compliance with all site, consensus, and industry standards and recommendations. All deviations are identified and causes determined. All equipment and instrumentation are properly calibrated and are adequate for support of an effective occupational S&H Program.
Level 5	All requirements of 3 and 4 above plus...Hazard controls are fully in place and continually improved upon based on workplace experience and general knowledge. Documented reviews of needs are conducted by certified health and safety professionals. There is a process in place to control the accountability of instrumentation, equipment, and supplies. Funding resources are available for abatement of occupational health and safety hazards.
Element XI	<i>Maintenance: An effective S&H Program will provide for facility and equipment maintenance so that hazardous breakdown is prevented.</i>
Level 1	No preventative maintenance program is in place; breakdown maintenance is the rule. Schedule is always placed ahead of maintenance.
Level 2	There is a preventive maintenance schedule, but it does not cover everything and may be allowed to slide, or performance is not documented. Safety devices on machinery and equipment are generally checked before each production shift.
Level 3	An equipment maintenance schedule is implemented; it is followed under normal circumstances. Manufacturers' and industry recommendations for maintenance frequency are complied with. Breakdown repairs for safety-related items are expedited. Safety device checks are documented.
Level 4	All requirements of 3 above plus...The employer has effectively implemented and adheres to a maintenance schedule that applies to all equipment. Facility experience is used to improve S&H-related maintenance scheduling.
Level 5	All requirements of 3 and 4 above plus...Maintenance plans and operations procedures are regularly reviewed for adequacy. Maintenance changes are expeditiously implemented following any change in facility or process control.
Element XII	<i>Medical Program: An effective S&H Program will include a suitable medical program appropriate for the size and nature of the workplace and its hazards.</i>
Level 1	Employer is unaware of, or unresponsive to, medical needs. Required medical surveillance, monitoring, and reporting are absent or inadequate.
Level 2	Required medical surveillance, monitoring, and reporting responsibilities are assigned and carried out to comply with applicable standards, but results may be incomplete or inadequate.
Level 3	Medical surveillance, monitoring, and reporting comply with applicable standards. Employees report early signs/symptoms of job-related injury or illness and receive appropriate treatment. A PPE program is in place.
Level 4	All requirements of 3 above plus...Health care providers provide follow-up on employee treatment protocols and are involved in hazard identification and control in the workplace. Medical surveillance addresses conditions not covered by specific standards. Potential health hazards have been identified by appropriately qualified personnel utilizing a complete industrial hygiene survey or a complete process hazards review. There is an adequate control of accountability of instrumentation, equipment, and supplies. There are funding resources available for abatement of occupational health hazards. A program that strictly enforces the rules that determine when to use PPE and what type is in place. Ergonomic considerations are a part of the medical program.



Level 5	All requirements of 3 and 4 above plus...Occupational Health personnel are available to respond to health and hygiene questions and are fully involved in hazard identification and training. Management has a scheduled program for periodic monitoring and sampling of any identified problem areas. Monitoring and sampling are conducted by appropriately trained personnel with results available for OSHA's review. Standard, nationally recognized procedures are used for surveying and sampling, as well as testing and analysis. PPE is properly used in conjunction with engineering and administrative controls. A written respirator program, as well as appropriate training, is in place and implemented where respirators are needed. Availability, fit-testing, and maintenance are included as part of the PPE program responsibility. Ergonomic evaluations are a part of workplace health assessments.
Element XIII	Emergency Preparedness: <i>There should be appropriate planning, training/drills, and equipment for response to emergencies. Note: In some facilities, the employer's plan is to evacuate and call the fire department.</i>
Level 1	Little or no effective effort to prepare for emergencies is apparent.
Level 2	Emergency response plans for fire, chemical, and weather emergencies as required by site policy are present. Training is conducted as required by the standard. Some deficiencies may exist.
Level 3	Emergency response plans have been developed and are reviewed by a qualified S&H professional. Appropriate alarm systems are present. Employees are trained in emergency procedures. The emergency response extends to spills and incidents in routine production. Adequate supply of spill control and PPE appropriate to hazards onsite are available.
Level 4	All requirements of 3 above plus...Emergency response plans have been developed by qualified S&H professionals and are updated annually. Appropriate alarm systems are installed and periodically tested. Employees are trained in emergency procedures, and regular drills are conducted. Drills include availability and use of PPE appropriate to site-specific hazards.
Level 5	All requirements of 3 and 4 above plus...Designated emergency response teams with adequate training are onsite. All potential emergencies have been identified. The plan is reviewed by the local fire department. Emergency plans and drills are re-evaluated at least annually and after each significant incident. Procedures for terminating an emergency are clearly defined. A special team of fire protection specialists is provided for the site. Emergency equipment availability and adequacy are reviewed and updated on an annual basis.
Element XIV	First Aid: <i>First aid/emergency care should be readily available for any injury or illness.</i>
Level 1	Neither onsite nor nearby community aid (e.g., emergency room) can be ensured.
Level 2	Either onsite or nearby community aid is available on every shift.
Level 3	Personnel with appropriate first aid skills commensurate with likely hazards in the workplace are available. Management documents and evaluates response time on a continuing basis.
Level 4	All requirements of 3 above plus...Personnel with certified first aid skills are always available onsite; their level of training is appropriate to the hazards of the work being done. Adequacy of first aid is formally reviewed after significant incidents or following process changes.
Level 5	All requirements of 3 and 4 above plus...Personnel trained in advanced first aid and/or emergency medical care are always available onsite. A health care provider is onsite for each production shift. Emergency services including provisions for ambulances, EMTs, emergency clinics, or hospital emergency rooms are provided onsite.
Safety Health Training	
Element XV	S&H Training: <i>S&H training should cover the S&H responsibilities of all personnel who work at the site or affect its operations. It is most effective when incorporated into other training about performance requirements and job practices. It should include all subjects and areas necessary to address the hazards at the site.</i>
Level 1	Facility depends on experience and peer training to meet needs. Managers/supervisors demonstrate little or no involvement in S&H training responsibilities. Site-required training is not provided to employee representative and collateral duty personnel.



Level 2	Some orientation training is given to new hires. Some safety training materials (e.g., pamphlets, posters, and videotapes) are available or are used periodically at safety meetings, but there is little or no documentation of training or assessment of worker knowledge in this area. Managers generally demonstrate awareness of S&H responsibilities, but have limited training themselves or involvement in the site's training program. Qualified instructors are not encouraged to provide training to site employees as required for job certifications because it takes away from some of their primary job responsibilities. Occupational S&H training that is available to employees does not adequately meet regulatory requirements.
Level 3	S&H training required by applicable standards is provided to all site employees. Employees can generally demonstrate the skills/knowledge necessary to perform their jobs safely. Records of training are kept, and training is evaluated to ensure that it is effective. Management established training plans have been developed for some of the employees.
Level 4	All requirements of 3 above plus... Knowledgeable persons conduct S&H training that is scheduled, assessed, documented, and addresses all necessary technical topics. Employees are trained to recognize hazards, violations of industry standards, and facility practices. Employees are trained to report violations to management. All site employees, including supervisors and managers, can generally demonstrate preparedness for participation in the overall S&H Program. There are easily retrievable scheduling and record keeping systems. Management has established training plans for most of their employees and track re-certification requirements. Adequate S&H hazard and professional development training is available to occupational S&H staff members to keep up with current technology and developments.
Level 5	All requirements of 3 and 4 above plus... Training covers all necessary topics, situations, and includes all persons working at the site (hourly employees, supervisors, managers, contractors, part-time, and temporary employees). Employees participate in creating site-specific training methods and materials. Employees are trained to recognize inadequate responses to reported program violations. Retrievable record keeping system provides for appropriate retraining, makeup training, and modifications to training. Management has established training plans that include S&H training for all employees, and records are completed identifying required training in each individual's plan. The directorate has completed an annual effective training evaluation to determine if individuals need to update or re-certify in specific areas of training. Line management understands and carries out responsibilities including analysis of work for hazards, maintenance of physical protection, and reinforces employee training through performance feedback and, if necessary, through enforcement. Training certification is a criterion for critical personnel placement. Adequate training resources are budgeted.

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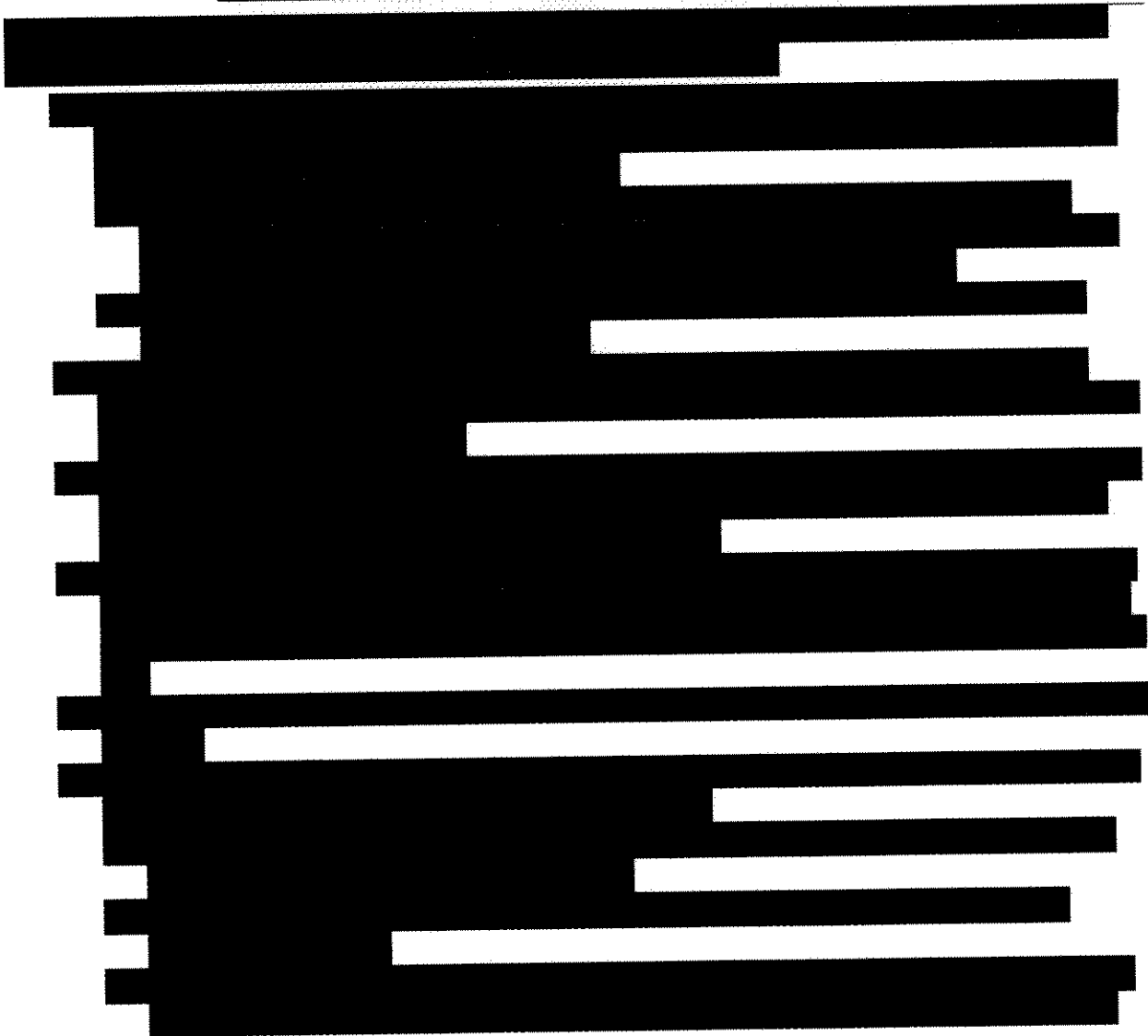
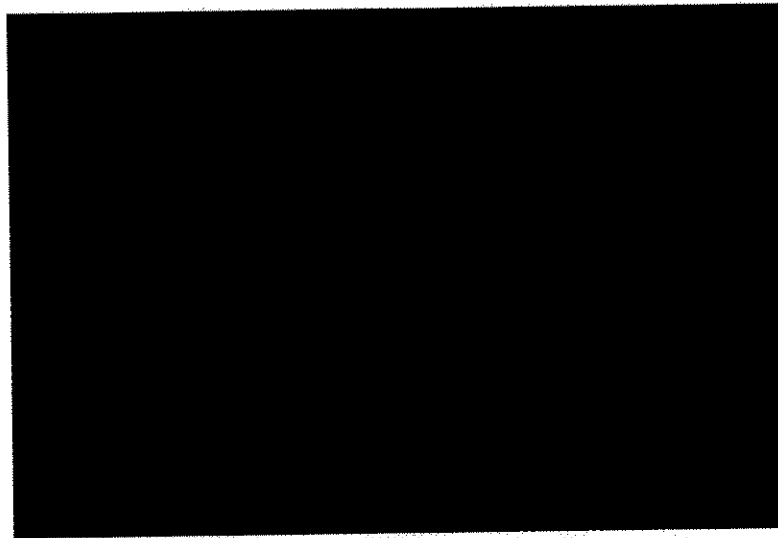
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Document No.	Title
14 CFR 1214.5	Mission Critical Space System Personnel Reliability Program
29 CFR 1904.5	Occupational Injury and Illness Recording and Reporting Requirements
29 CFR 1910	Occupational Safety and Health Standards
29 CFR 1919.120	Hazardous Waste Operations and Emergency Response (HAZWOPER)
40 CFR Parts 240 to 299	EPA Resource Conservation & Recovery Act; Chapter I, Subchapter J
EPCRA, ref. 40 CFR 302, 311, 312	Environmental Protection Agency (EPA) "Emergency Planning and Community Right-to-Know Act
FED-STD-313	Materials Safety Data, Transportation Data, and Disposal Data for Hazardous Materials Furnished to Government Activities
JPD 1440.6	NASA Records Management
JPR 1700.1	JSC Safety and Health Handbook – Policy, Requirements, Instructions, and Guidelines
JSC 17773	Preparing Hazard Analyses for JSC Ground Operations
NPD 8700.1A	NASA Policy for Safety and Mission Success
NPR 1441.1	NASA Records Retention Schedules
NPR 8621.1	NASA Procedural Requirements for Mishap and Close Call Reporting, Investigating, and Recordkeeping
NPR 8715.3	NASA Safety Manual
NFS 1852.223-73	NASA FAR Supplement – Safety & Health Plan
NFS 1852.246-70	Mission Critical Space System Personnel Reliability Program
OSHA 29 CFR 1926.1101	Asbestos Standard for Construction
OSHA CSP 03-01-003	Voluntary Protection Program (VPP): Policies and Procedures Manual
TDH ref. Chapters 505-507	Texas Department of Health: Health and Safety Code





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Classification Level and Investigation Type	Appointing Official	Endorsing Officials	Officials Reviewing Mishap Report Prior to Authorization for Public Release
High-Visibility Mishap or Close Call	MDAA (For Offsite, In-flight or Program Contractor Site) ¹ or CD or AA/OIA (For Center Onsite or Offsite Center Support Contractor) ¹	Appointing Official ¹ , Chief/OSMA ¹ , Chief Engineer Procurement ¹ , Chief Health and Medical Officer (CHMO) ^{1,3} , Other ¹	General Counsel ¹ , OPA ¹ , NASA Export Administrator ¹ , OSPP (Security) ¹



Classification Level and Investigation Type	Appointing Official	Endorsing Officials	Officials Reviewing Mishap Report Prior to Authorization for Public Release
Type A	Administrator ² AA ² , or CD or AA/OIA (For Center Onsite or Offsite Center Support Contractor) or MDAA (For Offsite, In-space flight, or at Program Contractor Site)	Appointing Official, Administrator ² , Chief/OSMA Chief Engineer CHMO ³ , Procurement ⁴ , Other ⁴	General Counsel, OPA, NASA Export Administrator, OSPP (Security)
Type B	CD or AA/OIA (For Center Onsite or Offsite Center Support Contractor) or MDAA (For Offsite, In-space flight, or at Program Contractor Site)	Appropriate MDAA, Appointing Official, Chief/OSMA Chief Engineer CHMO ³ , Procurement ⁴ , Other	General Counsel, OPA, NASA Export Administrator, OSPP (Security)
Type C	CD Designee or AA/OIA Designee (For Center Onsite or Offsite Center Support Contractor) or MDAA Designee (For Offsite, In-space flight, or at Program Contractor Site)	Appointing Official and Center Process	Center Chief Counsel, Center PAO, Center Export Administrator, Center Process
Type D	CD Designee or AA/OIA Designee (For Center Onsite or Offsite Center Support Contractor) or MDAA Designee (For Offsite, In-space flight, or at a Program Contractor Site)	Appointing Official and Center Process	Center Chief Counsel, Center PAO, Center Export Administrator, Center Process
Close Call	CD Designee or AA/OIA Designee (For Center Onsite or Offsite Center Support Contractor) or MDAA Designee (For Offsite, In-space flight, or at Program Contractor Site)	Appointing Official and Center Process	Center Chief Counsel, Center PAO, Center Export Administrator, Center Process

Key:

- ¹ = Occurs when the Administrator, AA, MDAA, CD, Chief/OSMA, or CHMO decides that the high-visibility mishap or high-visibility close call should be investigated by a MIB.
- ² = Only when Administrator desires.
- ³ = Only when the mishap or close call involves an injury or fatality.
- ⁴ = When needed.

